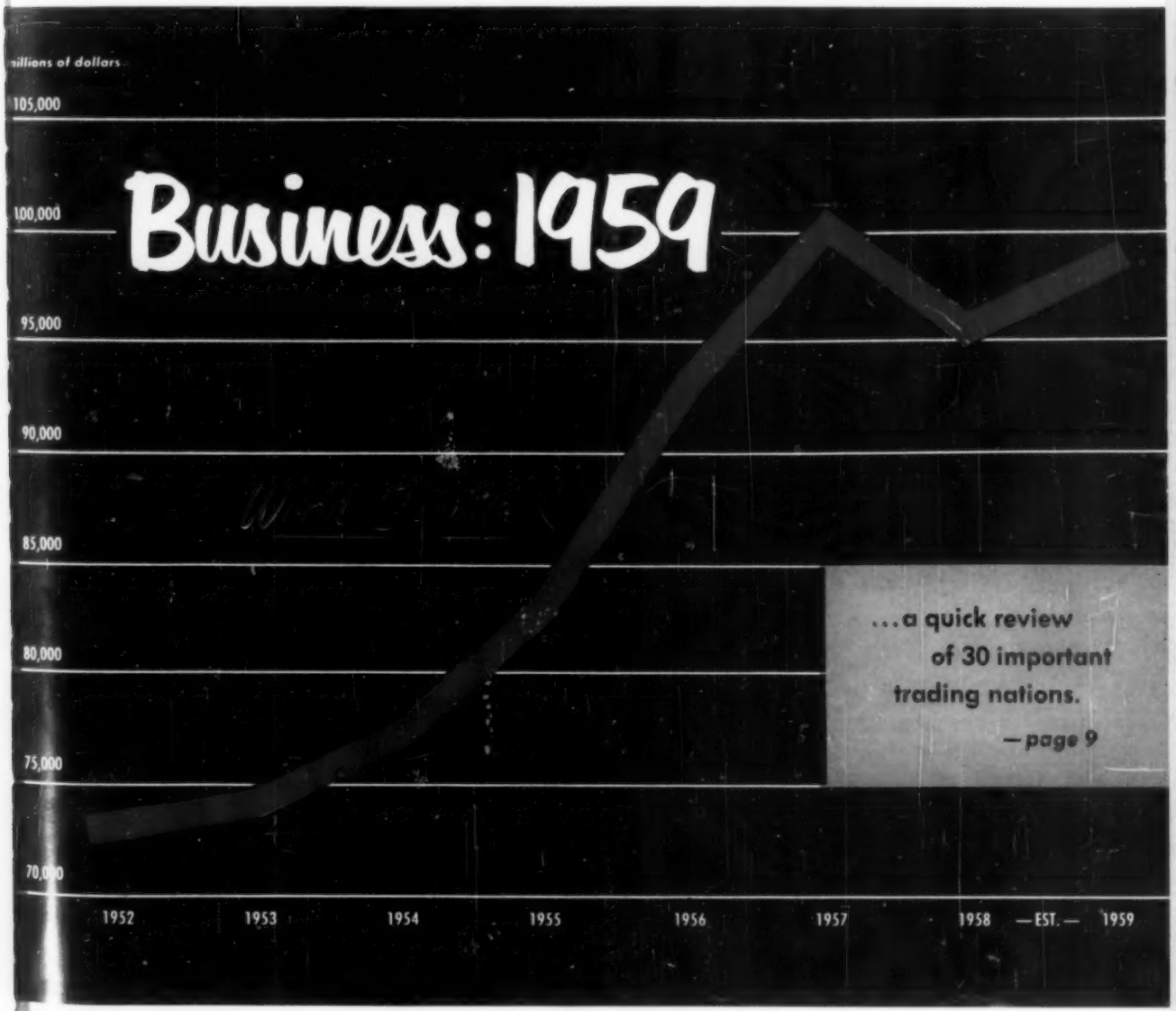
International Management Digest®

JANUARY 1959
ONE DOLLAR (U.S.)

THE McGRAW-HILL PUBLICATION OF WORLD BUSINESS INFORMATION



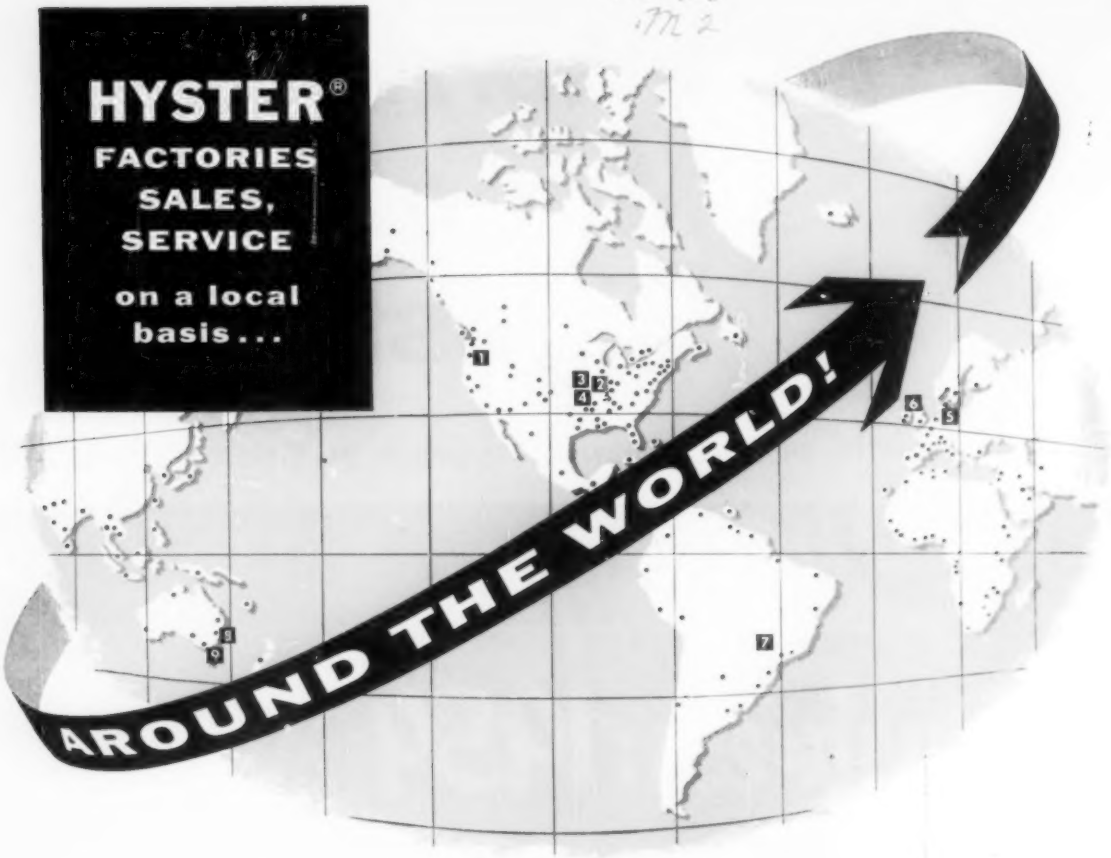
Business: 1959

...a quick review of 30 important trading nations.

—page 9

HD 28
.M2

HYSTER®
FACTORIES SALES, SERVICE
on a local basis...



Complete customer-service facilities for Industrial Trucks and Tractor Equipment

LEGEND

HYSTER FACTORIES:

1. Portland, Oregon
2. Danville, Illinois
3. Peoria, Illinois
4. Kewanee, Illinois
5. Nijmegen, The Netherlands
6. Glasgow, Scotland
7. Sao Paulo, Brazil
8. and 9. Sydney, Australia (Licensees)

DOTS REPRESENT SALES & SERVICE LOCATIONS

INDUSTRIAL TRUCKS

LIFT TRUCKS
1,000-20,000 lbs. capacity
Pneumatic and Solid-cushion tires

KARRY KRANE®
Up to 10,000 lbs. capacity mobile crane

STRADDLE TRUCK® CARRIERS
20,000-30,000 lbs. capacity

FREIGHTER®
Cargo Trucks

TUGSTER®
Industrial Tractor

TRACTOR EQUIPMENT

For Caterpillar®-Built Tractors

TOWING WINCHES
TRACTOR DONKEY® and YARDER
LOGGING SULKY® and ARCHES
HYSTAWAY® EXCAVATOR-CRANE
HYDRAULIC BACKHOE
HYSTER "GRID"® ROLLER
DW20A COMPACTER

Plus a complete line of lift truck attachments.

HYSTER®
INTERNATIONAL DIVISION

Moving ahead with Industry

For additional information write HYSTER COMPANY, International Division, 1800 North Adams Street, Peoria 1, Illinois, U.S.A.

World Affairs

Trading with the East . . .

To businessmen, the prospect of more trade with Communist nations in 1959 is at once attractive—and horrifying. There are hopes of more profitable sales in Communist markets. But there are fears of more Communist dumping in free-world markets.

These recent events illustrate the quandary. For example . . .

Peking sells **bicycles** in Malaya for $14, underselling a British model by 100%—yet it places an attractive order for **tools** with British companies. . . . A leading U. S. chemical manufacturer signs a two-year, multi-million-dollar contract with Soviet suppliers for **benzene**—while other American firms talk about mobilizing against rising exports of Communist **machine tools**. . . . Japan suffers **Peking's competition** while planning to expand its **Russian trade**. . . . Latin Americans see hope for their exports in new large **Soviet barter deals**, while Washington debates **drastic measures** to counteract the Soviet offensive in the hemisphere. . . . Indonesia finds itself **"caught in the middle"** in trade with the U.S.S.R. and Peking—yet its commerce with the U.S.A. expands faster.

No wonder businessmen are confused.

Confusion comes from the fact that to the non-Communist executive, trade is primarily business; to a Communist state trading bureau, it is primarily a political device.

That is why competition, or mutually advantageous commercial exchanges, as they exist in East and West, cannot be compared. The game is the same, but the stakes are different. It also helps explain why Communist trade and aid dealings cannot be accurately measured by current export-import statistics, price comparisons, the details of a new barter pact.

No question that the Soviet trade challenge is real. But you can say that, for the time at least, few businessmen are gaining or losing significant amounts of money as a result of this trade.

. . . Russia and East Europe

The U.S.S.R.'s continuing economic growth (page 13) is certain to increase its trading capacity. How much, how soon, is the question.

Last year, the Soviet Union's total trade with non-Communist nations probably grew by 10% to 15%, after a 25% rise in 1957. Eastern Europe's Western trade grew a bit faster. Yet in both cases, there is evidence that imports of manufactured goods dropped off.

For 1959, there is a chance for more such imports. Recent easing of Western security embargoes will allow for shipments of many machines formerly banned.

But few observers expect a very large increase. For one thing, some machines the Communists want most are still banned. For another, the Soviet bloc still seems committed to more autarky and intra-bloc trade.

Nor do Western observers expect a substantial rise in Communist machinery exports to less-developed lands—despite all the new assistance deals. So far, at least, such trade has not amounted to much.

Summing up: While there seems to be built-in limits to Soviet bloc trading capacity under present conditions, 1959 will see slow, steady growth.

Turn the page for more WORLD AFFAIRS

. . . Communist China

In 1958, the People's Republic of China emerged as a force to be reckoned with in Asian markets. Though its trade is still so small as to be economically insignificant, it is certainly not insignificant in a political sense.

More than the Russians, Peking appears to regard trade as a political tool. Prices bear little relationship to the market, and performance varies widely with each deal and the political "desirability" of the trading partner.

For example: In China, **rice** is a major import item, strictly rationed. Yet Peking offers rice to Burma at very low prices—and outside observers believe the Chinese cannot possibly deliver it all. Or look at manufactured goods: A Macao businessman orders **steel bars** from China. Half of the order is of good quality; the rest comes in the form of little more than scrap—when it comes. There are other examples—many "technicians" arrive to help build a **textile mill** in South Asia, but precious little of the expected machinery accompanies them.

Western economists suggest that China's industrial plant is not ready to turn out enough goods to make a serious inroad into Asian markets. And the nation seems committed to more self-sufficiency—not less.

But the Chinese have showed that they can compete in selected Asian markets—witness textiles, cement, bicycles, fertilizers. And in 1959, expect them to try other goods in an attempt to cause political problems and, secondarily, to earn some foreign exchange.

. . . Sharing the Markets?

"You take this country, I will take that one."

In many areas, Moscow and Peking seem to take this approach as they make trade and assistance deals. Egypt and Syria, for example, are primarily Soviet "sales territories"; Yemen and Pakistan are Peking's.

But Indonesia seems now to be a minor battleground for the two. Each has given the Djakarta government substantial credits. And now the Indonesians say they are caught in the middle.

Djakarta complains that Moscow is overcharging in a barter deal involving rice. The rice, Indonesians say, is actually Red Chinese rice delivered to Russia as a loan repayment. Indonesia could have bought more cheaply by going straight to Peking.

Meanwhile, Indonesia's trade with the Communist countries is not rising, despite the credits. The U.S.A. now ranks as the island republic's best customer as well as leading supplier.

. . . The U.S.A. Reacts

The annual review of U.S. foreign economic policy is beginning—and the problem of the Communist trade offensive is uppermost.

There are several policy possibilities. For example:

1. An increase of about $1,000-million in foreign aid funds—with heavy emphasis on economic, as opposed to military, credits and assistance. The goal is to stimulate world trade, and supply more development capital to Latin America, Asia, and Africa.

2. Measures to encourage the flow of American private capital to the more risky development areas overseas. Most important: A new program of tax concessions to U.S. investors abroad.

3. Measures to concert U.S. foreign economic policy with that of other industrial nations.

Meanwhile, some radical, long-range thinking is quietly going on in Washington. Experts are exploring the possibility that the U.S.A. may some day need a government overseas trading monopoly to meet Communist state trading on equal terms.

big and fast

new tractor loader speeds big-volume projects

The fast-working TL-16 tractor loader offers new size, maneuverability and operating simplicity for the efficient handling of big-volume construction and material handling jobs. It economically handles sand, gravel, ore, coal, chemicals and other bulky and heavy materials.

The TL-16 weighs 7170 kg (15,800 lb) and has a lifting capacity of 6350 kg (14,000 lb). Powered by a 97-hp diesel engine, the TL-16 offers many advantages that improve performance and increase production on varied applications:

Single-Lever Speed and Direction Control — Lets the operator shift into any forward or reverse gear while the machine is moving.

Strong Axle Connection—Axles are connected directly to frame with 2-inch-diameter steel pins. Rolling and shifting under load is eliminated.

Dump Cylinder Away From Dirt—Mounted high up and well back on the TL-16 loader . . . away from bucket, away from trouble.

Longer Reach — Extra reach means less time leveling load . . . more time loading and moving loads.

Plus these added TL-16 features . . . Extra Stability — Tip-Back Bucket — Power Steering — 4-Wheel Drive — 4-Wheel Power Brakes — Bucket Position Indicator — Operating Speeds to 42 kmph (25 mph).

Consult the Allis-Chalmers construction machinery dealer in your area for complete information on the new TL-16 or the five other tractor loaders, ranging in capacities from .42m³ to 1.54m³ (1½ to 3½ cu yd).

ALLIS-CHALMERS INTERNATIONAL
Department MD 159, Milwaukee 1, U. S. A.

**Tractor loaders are manufactured by Tractomotive Corporation, Deerfield, Illinois, and are sold and serviced by Allis-Chalmers construction machinery dealers.*

BUILDERS OF MACHINERY SINCE 1847

ALLIS-CHALMERS

JANUARY 1959
VOLUME 14 NUMBER 1

International Management Digest®

IN THE WORLD THIS MONTH

What Kind of Markets in 1959? A round-the-world preview of business problems and promises.... 9

What the Soviets' New Plan Means. An appraisal of Russia's economic machine.....13

Glass—With a French Accent. Saint-Gobain counts on new techniques in the U. S. market.....14

New Protection for Patents, Trademarks. Accord of 47 nations will change patent procedure....14

MARKETING

Take Another Look at the "Facts". Marketing methods must be constantly questioned.....15

Understanding the Buyer. Survey provides insights for those who sell to industry.....17

Long Road to the U. S. Customer. How a British firm found a market on the American farm....18

Retailer Is Target of P-O-P Research. Understanding point-of-purchase advertising.....20

NEW PRODUCTION TECHNIQUES

Looking Ahead in Technology. News about panel light, continuous brewing, rubber roads.....23

Two Cases Where Modernization Paid Dividends Fast. Typewriter-making moves faster; a bed that once sold for $2.25 sells for $0.90.....26

Plasma Guns Are Blasting New Production Paths. Energized gas will serve metalworking.....28

FINANCE

Financial Digest 32

MANAGEMENT METHODS

Too Much Scientific Management? Some fear that the human personality is being stifled.....35

Graphs: An Important Tool for Management. They give quick gages of cost, inventory, profits.....36

Nepotism Has Defenders, Too. Relatives are loyal, sometimes competent, but hard to fire.....38

Small Firms Fill "Cracks in the Door". Opportunities for the enterprising little man.....38

Who Should Do Your Engineering? Pros and cons of contracting plant construction.....38

New System of Work Measurement. Guide to accurate time standards for repair and assembly..41

In Management 42

DEPARTMENTS

World Affairs 1
The Editor Reports..... 6
Product Digest 30
Management Reading 47
Personal Affairs 48

PICTURE CREDIT: Sovfoto — p 13

E. E. WEYENETH, *Publisher*

PAUL R. MILLER, JR., *Editor*

Alfred E. Lewis, *Associate Editor*
Thomas B. Winston, *Associate Editor*

Irma Dunay, *Editorial Assistant*
Gilda M. Roberts, *Editorial Assistant*

Dexter Keezer, *Director of McGraw-Hill Economics Department*

John Wilhelm, *Director of McGraw-Hill World News*

NEWS BUREAUS

B. E. Barnes, *Atlanta*
O. M. Marashian, *Beirut*
Morrie Helitzer, *Bonn*
John Pearson, *Caracas*
Donald MacDonald, *Detroit*
Robert Gibson, *London*
John Kearney, *Los Angeles*
Alicja Grobtuch, *Melbourne*
Peter Weaver, *Mexico City*
William Coughlin, *Moscow*
Robert E. Farrell, *Paris*
Margaret Ralston, *San Francisco*
Sol Sanders, *Tokyo*
George B. Bryant, *Washington*
Correspondents in 45 other cities

R. H. Larsen, *Publications Manager*
W. J. Maher, *Business Manager*
H. E. Schorr, *Production Manager*

INTERNATIONAL MANAGEMENT DIGEST

INTERNATIONAL MANAGEMENT DIGEST (formerly McGraw-Hill DIGEST) Overseas and Latin American Editions is published monthly by McGraw-Hill International Corporation. James H. McGraw (1860-1948) Founder. Circulation in all countries of the world except the United States and Canada.

Executive, editorial, advertising and circulation office: 330 West 42nd Street, New York 36, N. Y., U. S. A. Donald C. McGraw, Chairman of the Board; Nelson L. Bond, President; Joseph A. Gerardi, Executive Vice President; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator.

Publication Office: 99-129 North Broadway, Albany 1, N. Y., U. S. A. See panel below for directions regarding subscriptions or change of address.

Subscriptions may be ordered through Fulfillment Manager (See below). Subscriptions to INTERNATIONAL MANAGEMENT DIGEST are solicited only from management men in business and industry. Subscription orders must indicate position and company name. Subscription rate $5.00 for 1 year; single copies $4.00 (U. S. currency). Second class mail privileges authorized at Albany, New York. Printed in U.S.A. © Copyright 1959 by McGraw-Hill International Corporation. All rights reserved. Reproduction of items in full or part without written permission prohibited in all parts of the world.

Send Subscription correspondence and change of address to Fulfillment Manager, INTERNATIONAL MANAGEMENT DIGEST, 330 West 42nd Street, New York 36, N. Y., U.S.A. For change of address please mail your complete new address as well as a clipping of the old envelope showing your old address.

Member Audit Bureau of Circulation

Bethlehem Buys from the World

To help make its millions of tons of steel each year, Bethlehem imports raw materials from 41 countries around the globe.

We must have, for example, such products as chrome, tin, tungsten, manganese, fluorspar, hemp, rubber, paper pulp, and chemicals. Some of these actually go into the steels we make; others are required for plant operations that contribute to steel-production.

You know Bethlehem as one of the foremost producers of steel and steel products. But think of Bethlehem, too, as a large-scale customer in many different markets all over the world. Bethlehem Steel Export Corporation, 25 Broadway, New York 4, U.S.A. Cables: "BETHLEHEM, NEWYORK."

Bethlehem's great Sparrows Point plant in the Port of Baltimore, U.S.A., is the world's largest steel mill located on tidewater. Products for export can be loaded from this plant directly aboard ship.

BETHLEHEM STEEL

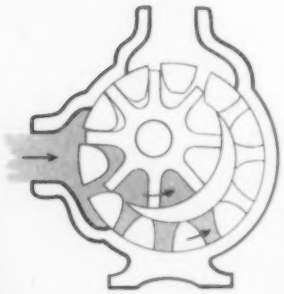
Represented in all principal cities of the world by offices and representatives of Bethlehem Steel Export Company

701E

WHY

are Viking rotary pumps

BETTER?



BECAUSE

they are Mechanically Superior

The Viking "gear-within-a-gear" pumping principle makes liquids flow into and through the pump, changing direction ever so slightly until liquids are trapped. This action cuts turbulence, foaming, cavitation and power consumption to a minimum. As a result, liquids are delivered in a smooth, positive flow . . . free of aeration.

TESTED

In test after test the superiority of Viking's pumping principle has been proved over other rotary pump action . . . and even more pronounced when handling fluids of 750 SSU and thicker. Learn the complete story on Viking rotary pumps. Send for free catalog

VIKING Pump Company

CEDAR FALLS, IOWA, U.S.A.

In Canada it's "ROTO-KING" pumps

Offices and Distributors in Principal Cities
See Your Classified Telephone Directory

The Editor Reports . . .

THE MOST FOOLHARDY THING editors can do is look back over past issues and congratulate themselves on how right they were a year ago on this or that forecast. It is foolhardy because it encourages others to look back too—and find the instances where the editors were wrong.

Nonetheless, it is a harmless sport, fit for readers and editors alike. We are now going to indulge in it.

In December 1957, amid gathering clouds of recession, this publication said "We suspect that the U.S. economy is a lot tougher . . . than many pessimists—here and abroad—are inclined to believe." The same issue also reported ". . . hopes for an [busines] upturn late in the year."

In January, we ventured ". . . the down-trend promises to be a relatively small one, shallower and shorter than 1953-1954. . . ." (Whoops! About 50% wrong.—Ed.) We did find that "most observers look for a turn-around after the middle of the year." So far, so good.

March was gloomy in the U.S.A. But in that issue we offered the reader even odds that "the recession will end by August." And while we were getting a bit doubtful ourselves, it seemed to us in the April issue that, among other things, there would be no drastic reduction in U.S. imports —that, indeed, "imports seemed to be holding up well. . . ."

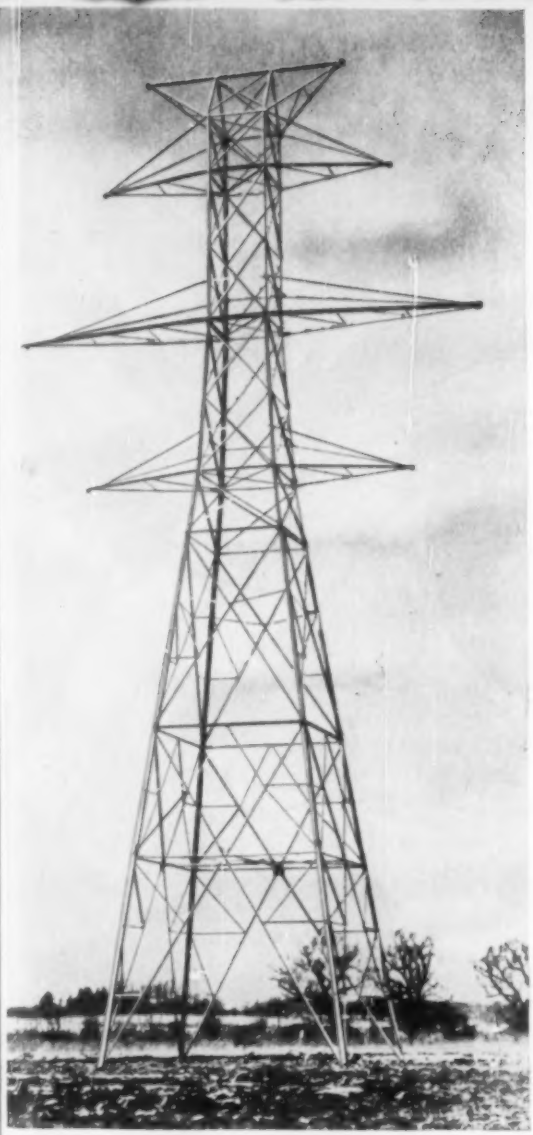
In preparing the May number, our editorial offices heard the Voices of Spring, and announced optimistically that there are ". . . some hopeful signs that the American recession was touching bottom." This was brash, but fortuitous. For in mid-June, when the May production statistics came out, it was clear that the "bottom" had indeed been reached. End of recession; beginning of upturn.

All this does not prove that editors are infallible (far from it). But the story of the 1958 recession, and the business outlook for 1959 (page 9), do suggest that modern capitalism is not helpless, as the Communists charge, before cycles of boom and bust.

This is important at a moment when the world is ringing with challenges from the Soviet Union—that it will "bury" other economic systems in a decade or two (page 13). While some of the Khrushchev boasts can be dismissed as propaganda, no one who has followed the Soviet Union's startling production growth can assume that the "economic competition" will be easily won.

So 1959 should be the year for businessmen everywhere to make an extra effort to sell the qualities of free—as opposed to Communist—economic systems. Sell it to their governments, their colleagues, their friends overseas, and prove it in the management of their own affairs. If the Soviet wants competition, let us compete. And if the politicians and the soldiers can contain the competition solely in the area of living standards, everyone—East and West —will be fortunate.

Paul R. Miller, jr



USS Man-Ten* High Strength Steel trims 165 tons of tower cost.

Because USS Man-Ten Steel has a yield point 50% higher than structural carbon steel, the Niagara Mohawk Power Corporation was able to substitute strength for weight in the construction of a 138-tower transmission line, saving the cost of 165 tons of steel as well as cutting shipping and erection expenses.

USS Man-Ten is used only in the main legs and the main bracing of the 123-foot towers in the 230-kv line. Yet this high strength steel, accounting for less than a third of the weight in each 24½-ton tower, gives a weight saving of 2,400 pounds for each structure.

Besides high strength, USS Man-Ten has resistance to atmospheric corrosion about equal to that of copper steel, and high resistance to abrasion. Fatigue strength is 40% greater than that of structural carbon steel. With all this toughness, USS Man-Ten can be punched, drilled and gas-cut readily, and – because of its greater ductility – can be formed with unusual ease.

And USS Man-Ten Steel offers all the above advantages at lower cost per ton. That's another reason why it's being used so widely on towers, bridges and other important structures.

Additional USS High Strength Steels – USS Cor-Ten Steel, USS Tri-Ten Steel and USS Par-Ten Steel – are available for extra-dependable, longer-lasting construction. You can find out more about Man-Ten and these other special steels by taking advantage of this offer:

Send for free 174-page manual.

Our new "Design Manual for High Strength Steels" is filled with formulas, charts and tables to give important assistance to engineers designing your product. The sound use of high strength steels, as described in these pages, means economy and efficiency. Write for your free copy to: 100 Church Street, New York 8, N. Y., U. S. A.

USS United States Steel Export Company

*TRADEMARKS

Now fly the KLM POLAR ROUTE

Travel time to Tokyo cut by 30%!

The Polar Route ... yet another addition to KLM's world-wide network! This new smooth short cut to the Far East speeds you from Europe to Japan 30 % faster than KLM's traditional route.

Smooth flying: the top of the world is virtually windless, the sky nearly always clear. And smooth service: KLM cares - very much - about your comfort and contentment, surrounds you with luxury that insists you should relax. Ask your Travel Agent to book you KLM Royal Dutch for your next trip to Tokyo - choose the Polar Route for speed and the Asian route for wonderful stopover possibilities.

Either way you'll discover that **to KLM you're more than a passenger - you're a person!**

10 Good Reasons why you'll prefer KLM's Polar Route

1. Travel time cut by 30 %
2. Smoothest flying ever
3. Luxurious DC-7C's with SleepAir and Tourist accommodation
4. Berths available on all flights
5. Convenient connections in Europe and Japan
6. Tax-Free Shopping Centre at Amsterdam Airport
7. Personalized KLM service
8. Incomparable cuisine
9. Multi-lingual cabin attendants
10. Both Polar and Asian Routes can be flown on ONE round trip ticket

THE WORLD OVER

KLM

ROYAL DUTCH AIRLINES

What Kind of Market in 1959?

The business mood is one of rising confidence — that the 1958 recession is left behind, that the New Year will see a slow improvement in trade. But no new boom is in sight. Problems of inflation, competition, changing trade patterns, and politics will tax the resources of businessmen and governments everywhere.

Below, in brief review, are the year-end reports of McGraw-Hill correspondents in the free world's important trading nations and market areas.

In North America

Competitive markets of 190-million where the consumer is King. He will buy more in 1959.

U.S.A.

Expect continued recovery, higher profits, at least a 4% rise in output—and lots of competition. Construction will be strong, and later in year investment in capital goods should rise slightly. Imports of industrial materials and consumer goods will increase. No inflationary boom is in sight — unless consumers suddenly start heavy spending on hard goods. Watch the autos for a clue.

CANADA

Recovery is less speedy than in U.S.A.; Canada worries about high winter unemployment and weak overseas markets for its exports. Little rise in imports until later in 1959. But consumer savings are high and spending — especially on homes and housewares — is strong. As U.S. business improves, and private capital investment rises, development boom should be renewed.

In Middle America

Here is a growing dollar market — worth careful cultivation by world businessmen.

MEXICO

Optimistic, healthy Mexico has a new president, with new ideas and projects. Recession in the U.S. hardly felt; now gold reserves are strong, reservoirs are full, industrial investment growing. While export prices lag, Yankee tourists make up the difference. Problem for 1959: Labor unrest, leading to wage rises and more inflation.

CUBA

Though economy is strong, revolution will continue to harm business. Sugar harvest is promising, but rebels control area where 70% of crop is grown—and threaten to tax shipments. Tourism, industrial output slowing; new investors are cautious. Government encouraging home production of formerly imported consumer goods.

CENTRAL AMERICA

World coffee surplus is the major problem — but these small nations fare better under new Latin American export quotas than do the big shippers. Banana market looks good; construction activity growing. All six nations depend heavily on U.S. trade, but there are good opportunities for European exporters. The area's "common market" plans are moving faster. With U.S. help, the regional trading community taking shape will stimulate investment.

continued on page 10

In South America

Fierce problems in the wake of the commodity recession. But look for slight improvement.

ARGENTINA

A gloomy picture for traders in 1959: Inflation rages, reserves near bottom, labor is balky, export outlook uncertain. Nation's solvency depends on strict anti-inflation measures, import curbs, foreign investment. International petroleum development scheme offers some hope. Favorable sign: Military backs government's economic plan.

BRAZIL

In trouble again as coffee policy, easy credit, deficits feed inflation. A harsh stabilization plan will raise taxes, cut spending – if government can enforce it. New trade deals with Soviet bloc pending. Yet industry grows – in auto, oil, chemical, construction fields. Though foreign investment lagged in 1958, more is expected.

CHILE

National output has not grown for several years; industry stagnates and investment declines as inflation continues. It will take major rise in copper price to improve market outlook. New government tries to take more businesslike approach to problems, tries to diversify economy, but internal politics are still unstable.

COLOMBIA

Nation faces another "austerity" year – and real hardship if coffee prices fall further. But inflation trend is slowing, equipment and materials imports may rise – partly financed by U.S. loans. Colombia is encouraging export industries, and hopes to diversify. Needed: a binding coffee export pact with Africa.

PERU

Inflation – following trade deficits and high spending – a major problem. Increased duties will limit imports. But Peru's ability to export farm and mineral products is growing, and higher world prices would bring big benefits. Ambitious housing, highway, and irrigation plans – but not enough capital. Mining development is proceeding.

VENEZUELA

Outlook depends heavily on new government's ability to restore business confidence. Foreign investment dropped after 1958 revolt, but large new inflow could begin if stability is assured and a $225-million loan from U.S. banks concluded. Petroleum and iron industries in fairly good condition; light manufacturing grows behind increasing tariff protection.

In Europe

Europeans are confident of better business in 1959—both at home and abroad. But . . .

AUSTRIA

Good business in this diversified, financially-stable economy. Nation hardly felt 1958 recession, expects output, investment, employment, foreign trade to rise in 1959. Austria plans major export drive in the West, but will buy more East European raw materials. Tourists and foreign capital are becoming important.

BELGIUM

Outlook only fair: It takes fewer men to knock down an Exposition than to build one. Unemployment made worse by crisis in aged coal mines, and by lower 1958 revenues from Congo. Belgium needs strong revival in overseas markets; until then expect public works programs and efforts to stimulate investment.

DENMARK

Nation enjoying the most favorable payments position since the war – so it can buy more and do more, especially in diversifying and modernizing industry. Problems: Agriculture faces shrinking markets; merchant marine feels lower rates; population growing fast. And all Danes worrying about Common Market's effect on their exports.

FRANCE

After four years of growth, business has levelled off. But no serious recession expected: There is confidence in the franc, higher saving, and hope that expansion will begin again in 1959. But France must reform taxation, increase exports, get ready for more competition. Question: What will de Gaulle's economic policies be?

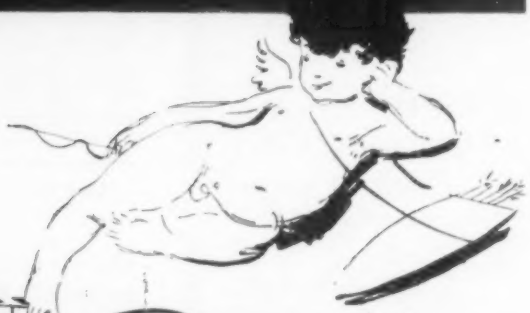
continued on page 12

Under the spell of the Dauphine

You will fall in love with the delightful Dauphine at first sight. In town traffic or on the open road the Dauphine will enchant you.

For every day she reveals some new and delightful aspect of her personality.

4 seats
4 doors
71.5 m.p.h.
47 m.p.g.



Dauphine

RENAULT
RÉGIE NATIONALE

2102

. . . future prosperity depends on settling problem of European economic integration.

GERMANY

Most Germans are supremely confident about 1959 business. Even if export orders are lower (Germans are mildly pessimistic about world trade), the home market is strong. Industrial productivity, construction, capital investment, consumer spending, foreign investment are all up. Weak spots: coal, steel, textiles.

ITALY

Expect economy to expand further after a slight slowing-down. The payments position is good, productivity – in factory and farm – is rising. Nation's capabilities in chemicals, metals, power, oil products, transport equipment is rising – and it is becoming a more competitive exporter. Problem: unemployment.

NETHERLANDS

The Dutch are optimistic. There has been spectacular improvement in the payments and reserve position; the guilder is a hard currency. For 1959, the nation expects rising business, at home and in export. Imports will rise to replenish inventories. Dutch businessmen are rushing to merge, modernize – get ready for the Common Market.

SWEDEN

Production, exports, investment will rise only if British and West European business expands. Otherwise stagnation, especially in pulp-paper and steel, where there is over-capacity. Imports of materials will rise; construction may continue high as the government tries to stimulate employment. Worries: inflation, and the Common Market.

SWITZERLAND

The government forecasts a budget surplus for 1959; industry executives see better sales prospects for 1959. There is high production in most industries, full employment, a good foreign trade position; money is plentiful and prices are stable. What worries businessmen? The possibility of discrimination.

UNITED KINGDOM

A mild recession now – but Britons are confident it will not last long. Sterling is stronger than it has been in 7 years; inflation has halted; consumer spending and industrial investment are being stimulated. Imports may rise in 1959. Britons believe world trade will expand – but worry about European integration.

In Africa-Asia

Improved outlook for trade and investment – but watch for competition from Communists.

AUSTRALIA

A prosperous and stable nation, with growing industry. But lower export income expected, and imports–especially consumer goods – will fall by 10%. Competition in market growing – even Peking seeks sales there. Expect more foreign investors to manufacture and license locally. Government is pushing overseas sales campaign.

INDIA

Foreign loans have eased 1958's exchange crisis; businessmen are optimistic, see improved industrial materials supply and better climate for private enterprise. Government plans more realistic – spending and imports under control. New major efforts to attract foreign capital, with tax and other concessions, is beginning to produce results.

JAPAN

Heavy U.S. buying helped sustain nation during 1958; now upturn in U.S. makes business optimistic. But Japan expects only slight improvement in Asian markets. At home, tax cuts, social security will keep consumer spending high. Problem: National output rise is not expected to keep up with population.

SOUTH AFRICA

A growing economy – but with an adverse trade position caused by low commodity prices. 1959 will see new export drive, cuts in consumer imports, possibly less spending on capital goods. Market more competitive as U.S., Europe, vie for sales. Nation says only higher gold price could stimulate imports.

What the Soviets' New Plan Means

Comrade Khrushchev (right) has big plans for 1965 and 1970. How well he succeeds will affect every businessman in the world.

IN RISING TO POWER, Nikita Khrushchev proved that he is one of the boldest gamblers in Russian history. As Premier he is still gambling, this time on a new Seven Year Plan, with which he hopes to push the Soviet Union into a commanding economic position in the world.

The plan will undoubtedly be the prime topic at this month's Communist Party Congress. Moscow's halls will ring with promises and exhortations and challenges:

. . . that the Soviet bloc will outproduce the non-Communist world by 1965;

. . . that the U. S. S. R. will enjoy the world's highest living standards, and will produce more than the U. S. A., by 1970.

There is a large measure of propaganda in these claims. Assuming a 3% annual rise in U. S. output, the figures already announced for the Soviet Seven Year Plan indicate that Soviet industrial output might rise from 40% of the U. S. A.'s output today to 50% by 1965. And for the projected second Seven Year Plan, 1966-1972, Khrushchev outlined much less ambitious goals than for the 1959-1965 Plan. That makes it highly unlikely that his boasts about out-stripping the U. S. A. can come true.

Nonetheless, no one in East or West is taking the new Seven Year Plan lightly. It represents a serious challenge to the economic supremacy of the non-Communist industrial nations. It is bound to give the U. S. S. R. a bigger role in world trade (page 1).

After looking carefully at individual segments of the new Plan, Western experts believe that the U. S. S. R. has a good change of achieving many of its specific heavy industry goals. They also agree that the gap in economic power between the U. S. A. and the U. S. S. R. will be narrowed. The spectacle of the U. S. S. R. heavy industry pulling up economically on the U. S. A. will have an important psychological effect on some underdeveloped nations. And certainly more Soviet resources will become available for assistance to those nations.

Furthermore, Soviet military power will increase in step with industrial strength. Khrushchev first presented his Seven Year Plan in the crudest of power terms, citing the need for heavy defense investment to guard Communist gains against "imperialist attack."

The new Seven Year Plan calls for Soviet industry to grow more slowly than the Kremlin says it has grown in the past few years. This does not surprise outside observers—they have been predicting that the rate of growth would soon have to slow. Still they are impressed by the planned increase of 8.8% yearly in industrial production.

They note, too, that the expansion plan seems concentrated more heavily in capital goods than at any time since Stalin. It would appear that Khrushchev is reversing the recent trend toward more consumer goods. Under the most recent Five Year Plan (abandoned in 1957 after one year), producer and consumer goods industries were supposed to grow at the same speed. Now capital goods output is scheduled to rise by about 9.3% yearly; for consumer industries, the rate is to be about 7.3%.

This widening gap suggests that Khrushchev is making a mockery of his promises to the Russian people. But the percentages do not tell the whole story. Consumers will probably benefit from some of the increased heavy industry investment. For example, the chemical industry plan calls for tripling output at a cost of around $25,000-million, with expansion concentrated in plastics and synthetic fiber capacity. Some of this capacity will serve consumers. And the Seven Year Plan's projected increase of 70% in farm production should directly benefit consumers—though this is among the most doubtful of its promises.

Here are some other promises:

—**A 5% yearly increase** in real income per capita. This is less than that promised in the last two planning periods. It might be done.

—**A 40-hour week by 1962,** 35 hours later. True, the Kremlin has been able to reduce working time. However a growing labor shortage makes further reduction difficult for the next decade.

—**More housing.** Khrushchev talks of twice as many housing units in the next seven years as during the past seven. It is a difficult goal. For one thing, many of the new houses will have to be used for farmers, moved off the land to help expand industrial production.

Although the Seven Year Plan offers something to almost everybody, the main economic emphasis is clear. These goals are paramount:

Development of the eastern hinterland; metallurgy; chemicals; use of more petroleum and natural gas; rapid electrification and substitution of thermal for hydroelectric power; railway improvement; expansion of state farms.

A variety of factors will affect Khrushchev's chances of success. The most serious is the threatening labor shortage. Even demobilization of 2-million soldiers (which

Khrushchev says he has done), and the plan to put youths to work earlier, will not completely ease the shortage.

That means the productivity will have to rise at a fantastic rate. Khrushchev counts on productivity increases based on new technology, and on more efficient use of management resources under his program for decentralizing and modernizing the industrial system. As yet, however, no solid evidence has reached the West as to how much these efforts can accomplish.

Finally, there is the matter of finding the capital for the tremendous investment the Seven Year Plan will require. There is evidence that past plans have had to be cut back because the resources were just not available.

But the most important question mark involves the Soviet people: Will they continue to submit to the drive to build heavy industry while consumption is allowed to increase only very slowly? There is evidence of dissatisfaction, and in the longer-term future a new generation of better educated Soviet citizens with more leisure may exert strong political pressure for changes.

But for the time being, many Western observers believe the Russian people will accept their lot. In the past they have been willing to trade the comforts of the present for promises of a more glorious future. And Khrushchev has presented them with a program calculated to fire their imaginations. (*Business Week, Nov. 22, p27*)

SAINT-GOBAIN President de Vogue (left) and Managing Director Grandgeorge—shown reflected in their product—count on U.S. markets for . . .

Glass—With a French Accent

THIS MONTH, and throughout 1959, U.S. businessmen will be rushing to Europe, studying the market there and seeking plant sites and business partners. But the two French gentlemen above are proof that the Atlantic is a two-way "business boulevard." For later in the year, the company which they head — Societe Saint-Gobain — plans to break ground for a $40-million plate glass plant in the U.S.A., a project that will be one of Europe's most important manufacturing investments in North America since World War II.

Saint-Gobain has been expansion-minded since its founding in 1665 by Louis XIV. It is a world leader in glass, producing as much as 15% of the plate and 12% of the sheet and rolled glass in the world. But today glass accounts for only half the company's gross income (over $400-million yearly); a vast array of chemicals accounts for the rest. Saint-Gobain now has 32 plants in nine nations, employs 40,000, and has licensing agreements all over the world.

Saint-Gobain will not find it easy to make a large place for itself in the $700-million yearly U.S. plate glass industry, now dominated by two large American concerns. But Saint-Gobain, through an American subsidiary, already has a strong position in sheet glass, knows the market, and counts on its new twin-polishing process for plate which it hopes will cut production costs drastically. ●

New Protection for Patents, Trademarks

SOME IMPORTANT CHANGES in international patent and trademark regulations have been agreed upon.

They will go into effect as each member nation—there are 47—ratifies new amendments to the International Convention for the Protection of Industrial Property, recently voted at Lisbon (IMD, Oct., p10). Members agreed to pass national laws to enforce all provisions of the Convention.

The most important amendment stipulates that failure to "work" a patent should be penalized by compulsory licensing only, and not by revocation of the patent. And such licensing must be non-exclusive and non-transferable.

A provision to guarantee royalty payments in the case of forced licensing failed to win agreement; and the U.S. insisted on exemptions for anti-monopoly cases. The grace period for working a patent remains at three years from date of patent, or four years from filing.

Some other agreements:

—Protection is extended to industrial designs.

—Trademarks can be registered without proving home registration.

—The owner of a mark can oppose or cancel a registration made by an agent without permission.

—Grace period for paying patent maintenance fees is lengthened to six months.

Many other proposed changes were vetoed because of a conflict with national laws. For example, amendments that would protect trademarks not in use for five years, allow licensing of trademarks without transfer of business or goodwill, and protect famous marks even if not used in the country, were voted down. And there was strong opposition to even the principle of patenting chemical products.

Two important resolutions were passed, calling for the reorganization of the entire text of the Convention, and for administrative conferences to discuss the working of the Convention. Jurisdiction of the World Court in a dispute was voted down, however. ●

Things are not always what they seem. The way a company sold its wares 10 years ago—or even last year—may be out of date. This means marketing men must be ready to . . .

Take Another Look at the 'Facts'

AN ESSENTIAL MANAGERIAL ART is the ability to distinguish solid facts from generally accepted assumptions. In some companies there are many assumptions which carry the force of Holy Writ—and are not to be questioned.

This is especially true in the field of marketing. And executives charged with marketing and sales responsibilities must constantly challenge the assumptions upon which their strategy has been based.

What might have been a sound idea 20 years ago—or even one year ago—may prove a dangerous misconception today, blocking effective analysis of a problem simply because it is accepted as fact.

Here, an American management consultant discusses seven common assumptions he has found among clients. In each case, company management used the assumptions as "mental springboards" from which to jump into a searching study of accepted practices.

1. Products

"We need an extensive product line just to maintain the volume we get on a few numbers."

In a typical company, 20% of the product line may account for 80% of the volume. In all probability, that volume could not be gained without a well-rounded line. But if the product line is to remain profitable, constant pruning is necessary. Otherwise, what is made on the high-volume products will be lost on the fringe group. Here are two questions you might ask yourself about this assumption:

—Do our customers actually require all the fringe products, or are we overestimating their needs?

—Are the customers who buy the volume products also the ones who buy the fringe group?

Take this example: A hardware company found that these fringe products were going to customers who did not buy the volume products. These customers made purchases for small amounts; their purchases were declining, too. Management found that a sizable, expensive segment of their product line could be dropped without offending important customers.

2. Customer Analysis

"Our salesmen don't have to be taken by the hand and led to the doors of our best prospects. They know where to call for the most profitable results."

This assumption is questionable on at least two counts:

—Very often your "best" prospect, in terms of profitable sales volume, may very well not be the "best" prospect for a particular saleman—because of his inability to sell that customer. A salesman may use the word "best" in reference to his own interests and eliminate a number of the company's top prospects.

—Even if the salesman uses the word "best" in the company sense, it is improbable that he will have a full knowledge of the market and its potential. This is especially important with new products that might add more potential to one customer than another, or might even create an entirely new customer group.

An animal-feed company found that substantial shifts in poultry population had changed the character of its markets, and had brought about new customer concentrations. It was overselling in some areas, and underselling in others. Thus, a shift in selling emphasis to correspond to customer potential provided real profit opportunities that the individual salesman had not recognized.

3. Territories

"We can tell by our sales records that our territories are correctly laid out."

Unfortunately, this is not always true. Records tell you little about the business you are missing. One of the most important contributions market research makes to business management is the establishment of potentials for a given area. When sales are matched to potential, a company has a measurement of its market penetration.

Recently a pharmaceutical firm selling feed supplements and animal health products effectively combined market research with distribution cost analysis. After a market-by-market potential (based on animal population and feed consumption) was established, and a desired market penetration was determined, distribution costs were analyzed to set these three guidelines:

—A break-even point, on maximum market coverage by salesmen.

—The most profitable sales concentration.

—Minimum market coverage per salesman.

With these guides, management had a new measure of the market—plus help in deciding how many salesmen it needed to cover given areas.

4. Salesmen's Compensation

"You can generally depend on straight commission as being the best method of compensating salesmen."

This assumption raises four important doubts:

—Straight commission gives the salesman an unusual amount of independence; hence the manager lacks control over a salesman's activities.

—Company sales volume may de-

Airtemp pays for itself

in increased sales

and increased efficiency

Businessmen everywhere are finding that shoppers buy more, workers produce more when they're Airtemp cool and comfortable. Chrysler Airtemp replaces heat and humidity with air that's cool, dry, and healthful. Your profits rise with the comfort of your customers, the efficiency of your workers. Airtemp returns your investment in a very short time.

Airtemp offers you economical installations for every need: from compact window units for a single office, to giant packaged units designed to cool an entire store or factory. Various types and designs in capacities from ½ hp. to 1500 tons.

For detailed information, contact your local Airtemp distributor, or mail the coupon below.

MAIL COUPON TODAY

Please send me information on Airtemp air conditioning.

NAME_____ ☐ Room

☐ Home

ADDRESS_____ ☐ Commercial

_____ ☐ Industrial

CHRYSLER INTERNATIONAL, S.A.
30 Rue Malatrex, Geneva, Switzerland

pend on the salesman's standard of living; if a salesman is satisfied with a modest living from modest sales, the company loses.

—Unless the commission rate is changed as the company grows, sales costs rise at the same rate as increasing sales volume. Thus, management loses an opportunity to gain leverage on increasing sales volume.

—Attracting young men into the selling profession today requires the security of a base salary that assures a good standard of living.

5. Distribution Channels

"As far as our distributors are concerned, a fair price and margin, and good service, are all we have to think about."

This is another assumption that is becoming less valid every day—if indeed it was ever valid at all. Progressive manufacturers are giving distributors many additional benefits. They provide field servicing, help with inventories, supply advertising aid, and maintain sales contacts with distributor salesmen.

Sometimes a questioning attitude toward distribution channels can produce an entirely new marketing system. Consider the case of one specialty products manufacturer.

This company was on the verge of switching from factory branches in a number of major markets to privately-owned distributors. For some years the company's branches, which were separate corporations, reported only break-even operations or a slight loss. Management believed its time and energy might be directed more profitably elsewhere, and that private distributors could do a better job.

It was a major decision—and required careful study. So a new approach was initiated. Instead of being viewed as separate financial entities, the factory branches were considered part of total company operations, and factory profits were credited to branch sales. The same approach was taken on distributor sales, which already accounted for half the company volume.

Under this analysis, branches showed a 6% return on sales. Private distributors contributed only half as much profit. This resulted from two facts:

—Branches attained twice the

market penetration, and thus twice the sales volume on which to make a profit.

—The branches' product mix was much more profitable because company managers emphasized higher margin products and lines.

Later, management projected the branch performance into the remaining major market areas served by distributors. A 13% increase in total profit appeared possible—because the sales-cost relationship was such that each additional sales dollar contributed a high margin of profit.

6. Pricing

"We are a national company, and need a uniform national price."

If your competitors are all national companies with a national pricing policy, perhaps this is not a competitive disadvantage. However, if you are trying to compete with local firms then your inflexible policy may be a handicap.

One company selling agricultural chemicals tried to maintain a uniform national price. Unfortunately, price weaknesses occurred in certain areas. The company was faced with the choice of either maintaining its national structure (and losing business) or reducing margins in the competitive areas, which would mean losing margin on all sales in other areas. Not surprisingly, the decision of the company was to change its national pricing policy.

7. Traffic

"Our truck drivers (or route salesmen) know the best way to cover the routes."

One cost-minded sales manager was able to reduce trucking costs by questioning this assumption.

A route, thought to be the best, was plotted, both mileage and time were compared with the route currently traveled. Such factors as starting time, roads, tolls, gasoline buying and time of each stop were considered. A policy was set up of having drivers buy gasoline only at stations that billed monthly. Customer locations and delivery cycles were determined and truck runs were then planned. When the complete program was installed ,the firm's trucking costs were reduced by more than 20%. (*American Business, Nov., p*18) ●

Understanding the Buyer

The smart salesman helps the buyer become a hero in the eyes of his management.

PURCHASING MEN have been fighting a long, uphill battle for management recognition. More than many other groups, they seek stature as business "professionals."

This is an important point for suppliers to remember. For no matter how good his product or service may be, it helps a salesman to know the rational and emotional needs of the men who buy.

Some valuable insights were turned up by a recent motivation study—conducted for the U. S. A.'s Dow Chemical Co., and reported in *Chemical Week*. It consisted of over 100 "depth interviews" with buyers in large and small firms.

The researchers conclude that emotional factors are indeed important, but no more so and perhaps less so than factual reasoning. Price, delivery, and quality are of great importance—as always. But the salesman who uses both approaches has a decided advantage. Emotional factors often become dominant when products and services are standardized, as is the case for many chemicals and basic materials.

Emotions are important because the typical buyer works under a cloud of uncertainty: "Am I right in this decision?" The buyer is keenly aware that he may fail to satisfy production schedules or buy what is requested at the best price. For this reason, minor mistakes by the supplier—even the failure to answer a letter promptly —feed feelings of uncertainty, and can produce a reaction out of all proportion to its significance.

Many buyers feel "trapped" between two powerful forces. Their own employer demands the best possible price, the fastest and cheapest delivery, unsurpassed quality, and perfect packaging.

On the other side, the supplier strives for the best possible price, delivery at his own convenience, and quality and packaging at a minimum of acceptability. And compounding the dilemma, buyers show some fear of small suppliers, prefer to deal with strong ones.

It follows that the salesman who helps the buyer reconcile his dilemma helps him to become a hero in the eyes of his own management. It is that salesman who gets the most orders.

But the ideal salesman is not afraid to disagree. He talks on a "man to man" basis. Attempts to bypass the purchasing man—as when a supplier tries to bring pressure to bear from above—are strongly resented. Lavish gift-giving and entertaining are often resented as a reflection on the buyer's professional status.

Strongly aggressive salesmen are also disliked and resented. The "Yes man" who always agrees with the buyer is disliked equally.

Cold, factual salesmen—who take the attitude that their company, product, and services speak for themselves—are not especially liked or disliked. But the survey indicates they would do better if they showed their emotions more.

The best sales presentation: the one that leaves no doubt in the buyer's mind, no uncertainty, no question of choice; one that reassures and makes it easy for a buyer to reach a decision. Any vagueness—about delivery, terms, packaging—makes him wary.

Telephone calls confirming shipments contribute to his sense of security. A call every three or four weeks and sincere interest in the buyer's problems satisfy his need to feel important. And calls by the suppliers' executives enhance his sense of prestige.

Another significant finding of the study: In the buyer's mind, the "corporate image" of a well-known supplier was almost wholly determined by that supplier's salesmen. And no differences in the buyers' images of the major chemical suppliers was discernible. Conclusion: The salesmen are much alike. It may also mean that it is impossible to build a clear corporate image in the eyes of purchasing men other than establishing one's identity as a member of the top group of suppliers. ●

Long Road to the U.S. Customer

Trials, tribulations, and successes of a British firm with a product that it felt could help the American farmer.

HOW DOES A SMALL MAKER of special equipment move into the American market? What special knowledge is required? And can such a move be made profitably in a field already crowded with big, highly competitive U.S. manufacturers?

One small British firm, Rotary Hoes Ltd., found answers to these questions in the agricultural machinery field, amid American farmers who were already the most efficient and highly mechanized in the world. Rotary Hoes found a place for itself by "starting small," persevering, and adapting its product and its sales story to the market.

I. From the Bottom Up

In 1948, when Rotary Hoes turned to the U.S. market, it was a comparatively small manufacturer of rotary cultivators. But the British concern believed it had a farm tool that did a job unlike any other; that such specialized equipment would appeal to productivity-minded U.S. farmers.

Rotary Hoes began with an intensive study of U.S. conditions. The executives decided that an early invasion of the rich farming area in the Middle West heartland would be unwise. U.S. manufacturers were there in force, with their factories as well as their sales forces.

As an alternative, Rotary Hoes started on the eastern seaboard. Here a single sales representative, carting a station-wagon load of equipment, moved from dealer to dealer, demonstrated the machines, and tried to learn more about American farm conditions. Pools of machines were warehoused at several points along the seaboard so that he could offer immediate delivery.

Sales resistance of U.S. farm equipment dealers proved formidable. A few distributors were appointed, but they complained that there was no demand for the equipment. Within a month or two the sales representative was joined by A. C. Howard, managing director of the company.

Rotary Hoes found that they had to go directly to the farmer, and sell "from the bottom up." With on-the-spot demonstrations, Howard and the salesman tried to convince individual farmers that the equipment not only effectively combined cultivating and harrowing operations, saving time, but left the soil in better condition for plant growth.

After making a sale, Rotary Hoes presented the details of the sale to the local dealer and offered him a commission on the sale—if he would stock the line. Often a dealer held back until a number of sales had been made in his area.

The British company soon learned that they could not impress customers with their reputation in England. The Americans had to be shown, and the equipment had to prove itself in the U.S.A.

Nonetheless, Rotary Hoes believes in using factory-trained British salesmen. They drive home the message: "Because it is British it has to be better." Special attention also was devoted to packaging and quick delivery. Publicity literature was printed in the American idiom.

II. Adapting the Product

Rotary Hoes got into early trouble by equipping their hand-controlled machine — called the Rotavator—with British engines. The engines were virtually unknown in the U.S.A., and spare parts were not always available.

Management decided on a switch to U. S.-made engines. The customer then was able to use whatever engine was prevalent in his district, and there was no problem in getting spares. Machines sales went up substantially with this change.

Mr. Howard came back from America with the conviction that there was a large market for a Rotavator that could be attached to tractors. Within six months a special design of the equipment was in production. Now Rotary Hoes produces equipment that can be attached to over 40 types of U.S. tractors.

III. Organization Changes

Sales rose quickly, and by 1950 Rotary Hoes had a distributor on the Pacific coast and was setting up its own subsidiary, chiefly to insure a high standard of after-sales service. The Pacific headquarters was moved from Seattle to San Francisco in 1951 to exploit the extensive truck-farming areas of California.

By 1953 Rotary Hoes felt strong enough to invade the rich and highly competitive Middle West. Howard set up an office in Chicago that was later to become the company's U.S. headquarters. In another two years machines were selling well enough to warrant centralizing administration in Chicago and closing their east and west coast offices.

Rotary Hoes now sells throughout the U.S.A. through "short line" distributors. These organizations cover two or three states each, and are completely independent of tractor manufacturers. Such distributors do not handle tractors, and therefore they are free to sell to any tractor dealer in their territory.

Rotary Hoes' own sales and technical people constantly visit distributors to offer assistance. Today they are a smaller but even more highly-trained group than originally, traveling up to 13,000 km. a month by car and plane.

With exports mounting, the company now takes advantage of freight rates offered by Canadian shippers to U.S. railroads. Last spring it sent a quarter-million dollars worth of equipment by sea to the U.S.-Canadian border, then routed it by rail to Chicago and Middle West distributors.

Now a new phase in Rotary Hoes' American marketing begins. The company has opened a plant in the U.S.A. to begin manufacture of some of its equipment. (*Business, Oct., p70*) ●

All Over the World...

Euclid Equipment does a wider range of work ...FASTER

Bauxite mining in Jamaica

Dam construction in Pakistan

Plant site grading in Venezuela

Copper mining in the Belgian Congo

On all kinds and sizes of jobs "Eucs" have proved their ability to get more work done faster and at lower cost. Because they're engineered and built for the toughest jobs, Euclids increase production with less downtime for service and repairs.

Rear-dump and bottom-dump haulers, and six self-powered scraper models provide the right size and type of equipment for any construction, mining and industrial work. The Euclid dealer in your country will be glad to provide descriptive literature and assistance with your earthmoving problems. If you prefer to write direct, your inquiry will receive prompt attention.

Dam construction in France

Coal stockpiling in Wales

Irrigation work in Australia

Hauling limestone at a cement plant in Mexico

GENERAL MOTORS OVERSEAS OPERATIONS • 1775 Broadway, New York 19, N. Y., U. S. A.

EUCLID (GREAT BRITAIN) LIMITED • Newhouse, Lanarkshire, Scotland

EUCLID PRODUCTS

Airtemp pays for itself

in increased sales

and increased efficiency

Businessmen everywhere are finding that shoppers buy more, workers produce more when they're Airtemp cool and comfortable. Chrysler Airtemp replaces heat and humidity with air that's cool, dry, and healthful. Your profits rise with the comfort of your customers, the efficiency of your workers. Airtemp returns your investment in a very short time.

Airtemp offers you economical installations for every need: from compact window units for a single office, to giant packaged units designed to cool an entire store or factory. Various types and designs in capacities from ½ hp. to 1500 tons.

For detailed information, contact your local Airtemp distributor, or mail the coupon below.

MAIL COUPON TODAY

Please send me information on Airtemp air conditioning.

NAME_____ ☐ Room

☐ Home

ADDRESS_____ ☐ Commercial

_____ ☐ Industrial

CHRYSLER INTERNATIONAL, S.A.
30 Rue Malatrex, Geneva, Switzerland

pend on the salesman's standard of living; if a salesman is satisfied with a modest living from modest sales, the company loses.

—Unless the commission rate is changed as the company grows, sales costs rise at the same rate as increasing sales volume. Thus, management loses an opportunity to gain leverage on increasing sales volume.

—Attracting young men into the selling profession today requires the security of a base salary that assures a good standard of living.

5. Distribution Channels

"As far as our distributors are concerned, a fair price and margin, and good service, are all we have to think about."

This is another assumption that is becoming less valid every day—if indeed it was ever valid at all. Progressive manufacturers are giving distributors many additional benefits. They provide field servicing, help with inventories, supply advertising aid, and maintain sales contacts with distributor salesmen.

Sometimes a questioning attitude toward distribution channels can produce an entirely new marketing system. Consider the case of one specialty products manufacturer.

This company was on the verge of switching from factory branches in a number of major markets to privately-owned distributors. For some years the company's branches, which were separate corporations, reported only break-even operations or a slight loss. Management believed its time and energy might be directed more profitably elsewhere, and that private distributors could do a better job.

It was a major decision—and required careful study. So a new approach was initiated. Instead of being viewed as separate financial entities, the factory branches were considered part of total company operations, and factory profits were credited to branch sales. The same approach was taken on distributor sales, which already accounted for half the company volume.

Under this analysis, branches showed a 6% return on sales. Private distributors contributed only half as much profit. This resulted from two facts:

—**Branches attained twice the**

market penetration, and thus twice the sales volume on which to make a profit.

—**The branches' product mix was much more profitable** because company managers emphasized higher margin products and lines.

Later, management projected the branch performance into the remaining major market areas served by distributors. A 13% increase in total profit appeared possible—because the sales-cost relationship was such that each additional sales dollar contributed a high margin of profit.

6. Pricing

"We are a national company, and need a uniform national price."

If your competitors are all national companies with a national pricing policy, perhaps this is not a competitive disadvantage. However, if you are trying to compete with local firms then your inflexible policy may be a handicap.

One company selling agricultural chemicals tried to maintain a uniform national price. Unfortunately, price weaknesses occurred in certain areas. The company was faced with the choice of either maintaining its national structure (and losing business) or reducing margins in the competitive areas, which would mean losing margin on all sales in other areas. Not surprisingly, the decision of the company was to change its national pricing policy.

7. Traffic

"Our truck drivers (or route salesmen) know the best way to cover the routes."

One cost-minded sales manager was able to reduce trucking costs by questioning this assumption.

A route, thought to be the best, was plotted; both mileage and time were compared with the route currently traveled. Such factors as starting time, roads, tolls, gasoline buying and time of each stop were considered. A policy was set up of having drivers buy gasoline only at stations that billed monthly. Customer locations and delivery cycles were determined and truck runs were then planned. When the complete program was installed the firm's trucking costs were reduced by more than 20%. (*American Business, Nov., p18*) ●

Understanding the Buyer

The smart salesman helps the buyer become a hero in the eyes of his management.

PURCHASING MEN have been fighting a long, uphill battle for management recognition. More than many other groups, they seek stature as business "professionals."

This is an important point for suppliers to remember. For no matter how good his product or service may be, it helps a salesman to know the rational and emotional needs of the men who buy.

Some valuable insights were turned up by a recent motivation study—conducted for the U. S. A.'s Dow Chemical Co., and reported in *Chemical Week.* It consisted of over 100 "depth interviews" with buyers in large and small firms.

The researchers conclude that emotional factors are indeed important, but no more so and perhaps less so than factual reasoning. Price, delivery, and quality are of great importance—as always. But the salesman who uses both approaches has a decided advantage. Emotional factors often become dominant when products and services are standardized, as is the case for many chemicals and basic materials.

Emotions are important because the typical buyer works under a cloud of uncertainty: "Am I right in this decision?" The buyer is keenly aware that he may fail to satisfy production schedules or buy what is requested at the best price. For this reason, minor mistakes by the supplier—even the failure to answer a letter promptly—feed feelings of uncertainty, and can produce a reaction out of all proportion to its significance.

Many buyers feel "trapped" between two powerful forces. Their own employer demands the best possible price, the fastest and cheapest delivery, unsurpassed quality, and perfect packaging.

On the other side, the supplier strives for the best possible price, delivery at his own convenience, and quality and packaging at a minimum of acceptability. And compounding the dilemma, buyers show some fear of small suppliers, prefer to deal with strong ones.

It follows that the salesman who helps the buyer reconcile his dilemma helps him to become a hero in the eyes of his own management. It is that salesman who gets the most orders.

But the ideal salesman is not afraid to disagree. He talks on a "man to man" basis. Attempts to bypass the purchasing man—as when a supplier tries to bring pressure to bear from above—are strongly resented. Lavish gift-giving and entertaining are often resented as a reflection on the buyer's professional status.

Strongly aggressive salesmen are also disliked and resented. The "Yes man" who always agrees with the buyer is disliked equally.

Cold, factual salesmen—who take the attitude that their company, product, and services speak for themselves—are not especially liked or disliked. But the survey indicates they would do better if they showed their emotions more.

The best sales presentation: the one that leaves no doubt in the buyer's mind, no uncertainty, no question of choice; one that reassures and makes it easy for a buyer to reach a decision. Any vagueness—about delivery, terms, packaging—makes him wary.

Telephone calls confirming shipments contribute to his sense of security. A call every three or four weeks and sincere interest in the buyer's problems satisfy his need to feel important. And calls by the suppliers' executives enhance his sense of prestige.

Another significant finding of the study: In the buyer's mind, the "corporate image" of a well-known supplier was almost wholly determined by that supplier's salesmen. And no differences in the buyers' images of the major chemical suppliers was discernible. Conclusion: The salesmen are much alike. It may also mean that it is impossible to build a clear corporate image in the eyes of purchasing men other than establishing one's identity as a member of the top group of suppliers. ●

Long Road to the U.S. Customer

Trials, tribulations, and successes of a British firm with a product that it felt could help the American farmer.

HOW DOES A SMALL MAKER of special equipment move into the American market? What special knowledge is required? And can such a move be made profitably in a field already crowded with big, highly competitive U.S. manufacturers?

One small British firm, Rotary Hoes Ltd., found answers to these questions in the agricultural machinery field, amid American farmers who were already the most efficient and highly mechanized in the world. Rotary Hoes found a place for itself by "starting small," persevering, and adapting its product and its sales story to the market.

I. From the Bottom Up

In 1948, when Rotary Hoes turned to the U.S. market, it was a comparatively small manufacturer of rotary cultivators. But the British concern believed it had a farm tool that did a job unlike any other; that such specialized equipment would appeal to productivity-minded U.S. farmers.

Rotary Hoes began with an intensive study of U.S. conditions. The executives decided that an early invasion of the rich farming area in the Middle West heartland would be unwise. U.S. manufacturers were there in force, with their factories as well as their sales forces.

As an alternative, Rotary Hoes started on the eastern seaboard. Here a single sales representative, carting a station-wagon load of equipment, moved from dealer to dealer, demonstrated the machines, and tried to learn more about American farm conditions. Pools of machines were warehoused at several points along the seaboard so that he could offer immediate delivery.

Sales resistance of U.S. farm equipment dealers proved formidable. A few distributors were appointed, but they complained that there was no demand for the equipment. Within a month or two the sales representative was joined by A. C. Howard, managing director of the company.

Rotary Hoes found that they had to go directly to the farmer, and sell "from the bottom up." With on-the-spot demonstrations, Howard and the salesman tried to convince individual farmers that the equipment not only effectively combined cultivating and harrowing operations, saving time, but left the soil in better condition for plant growth.

After making a sale, Rotary Hoes presented the details of the sale to the local dealer and offered him a commission on the sale—if he would stock the line. Often a dealer held back until a number of sales had been made in his area.

The British company soon learned that they could not impress customers with their reputation in England. The Americans had to be shown, and the equipment had to prove itself in the U.S.A.

Nonetheless, Rotary Hoes believes in using factory-trained British salesmen. They drive home the message: "Because it is British it has to be better." Special attention also was devoted to packaging and quick delivery. Publicity literature was printed in the American idiom.

II. Adapting the Product

Rotary Hoes got into early trouble by equipping their hand-controlled machine — called the Rotavator—with British engines. The engines were virtually unknown in the U.S.A., and spare parts were not always available.

Management decided on a switch to U.S.-made engines. The customer then was able to use whatever engine was prevalent in his district, and there was no problem in getting spares. Machines sales went up substantially with this change.

Mr. Howard came back from America with the conviction that there was a large market for a Rotavator that could be attached to tractors. Within six months a special design of the equipment was in production. Now Rotary Hoes produces equipment that can be attached to over 40 types of U.S. tractors.

III. Organization Changes

Sales rose quickly, and by 1950 Rotary Hoes had a distributor on the Pacific coast and was setting up its own subsidiary, chiefly to insure a high standard of after-sales service. The Pacific headquarters was moved from Seattle to San Francisco in 1951 to exploit the extensive truck-farming areas of California.

By 1953 Rotary Hoes felt strong enough to invade the rich and highly competitive Middle West. Howard set up an office in Chicago that was later to become the company's U.S. headquarters. In another two years machines were selling well enough to warrant centralizing administration in Chicago and closing their east and west coast offices.

Rotary Hoes now sells throughout the U.S.A. through "short line" distributors. These organizations cover two or three states each, and are completely independent of tractor manufacturers. Such distributors do not handle tractors, and therefore they are free to sell to any tractor dealer in their territory.

Rotary Hoes' own sales and technical people constantly visit distributors to offer assistance. Today they are a smaller but even more highly-trained group than originally, traveling up to 13,000 km. a month by car and plane.

With exports mounting, the company now takes advantage of freight rates offered by Canadian shippers to U.S. railroads. Last spring it sent a quarter-million dollars worth of equipment by sea to the U.S.-Canadian border, then routed it by rail to Chicago and Middle West distributors.

Now a new phase in Rotary Hoes' American marketing begins. The company has opened a plant in the U.S.A. to begin manufacture of some of its equipment. (*Business, Oct., p70*) ●

Bauxite mining in Jamaica

Dam construction in Pakistan

Plant site grading in Venezuela

Copper mining in the Belgian Congo

Coal stockpiling in Wales

Irrigation work in Australia

All Over the World...

Euclid Equipment does a wider range of work

...FASTER

On all kinds and sizes of jobs "Eucs" have proved their ability to get more work done faster and at lower cost. Because they're engineered and built for the toughest jobs, Euclids increase production with less downtime for service and repairs.

Rear-dump and bottom-dump haulers, and six self-powered scraper models provide the right size and type of equipment for any construction, mining and industrial work. The Euclid dealer in your country will be glad to provide descriptive literature and assistance with your earthmoving problems. If you prefer to write direct, your inquiry will receive prompt attention.

Dam construction in France

Hauling limestone at a cement plant in Mexico

GENERAL MOTORS OVERSEAS OPERATIONS • 1775 Broadway, New York 19, N. Y., U. S. A.

EUCLID (GREAT BRITAIN) LIMITED • Newhouse, Lanarkshire, Scotland

EUCLID PRODUCTS

The Reluctant Retailer is Target of Point-of-Purchase Research

AT ALMOST EVERY MODERN STORE, you will see point-of-purchase advertising: posters, cardboard or metal signs, fancy display stands for a particular product or brand. Such advertising seems to involve nothing more than going to the store owner and asking him to put the display on his shelves or windows.

But that is where the trouble comes. In point-of-purchase promotion (called "p-o-p" for short), the most difficult job is in getting the retailer to use the material. That is why many companies' primary interest in pre-testing display material is to assess the retailers' willingness to use it.

To be sure, advertisers also pretest for problems of a display's size, ease of handling, packing, and—to a lesser extent—a display's theme or design.

But not all companies test all the time. In a recent study of p-o-p advertising in 243 American companies, only 36% said they pre-test their displays as much as half the time. Food, drug, and soft-drink manufacturers apparently do the most pre-testing.

The main barrier to pre-testing is the lack of a technique that will predict results. As one advertiser expressed it: "So far we have not found a single checking method or testing technique that could predict results better than or even as well as our own judgment."

Lack of time seems to be another problem for advertisers, as are rapidly changing conditions, the expense of pre-testing, and the fear that pre-testing will give away secrets to competitors.

Despite these hindrances, however, the study shows that most advertisers believe that pre-testing of p-o-p material is worth their time and money.

To do acceptable pre-testing, the report says that advertisers must first determine clearly what their goals are in each promotion. A display piece aimed at improving retailer-manufacturer relations, for example, might be different from one aimed at linking a product with its national advertising. The type of store involved can make a difference, as can seasonal factors.

Advertisers evidently need to do more first-hand field observation, more research into how their own salesmen present their p-o-p material. If advertisers depend on the opinions of individuals—salesmen, for instance—in evaluating pretests, they should be sure the individuals understand the goals of the promotion program. Some advertisers have found that pre-testing in itself helps create the understanding needed to evaluate its effectiveness.

Asked to name their goals in p-o-p promotions, the companies said their major objectives are to build a bridge between national advertising and the local retail outlet, to get more and better product display, and to achieve brand promotion and identification. It is worth noting, the study points out, that promoting immediate "impulse" sales ranks fourth as a goal. (*Printers' Ink, Nov.* 14, *p*80) ●

In Marketing

SALES INCENTIVE PROGRAM should be checked against eight basic questions, according to a recent issue of *Industrial Marketing* magazine:

—Does it have a specific and valid sales objective, and measurable goals?

—Is the timing right?

—Is the prize or incentive arrangement adequate and equitable?

—Is the supporting promotional program appropriate and properly integrated with contest objectives?

—Is there a good, prompt reporting system to keep contestants informed of their progress?

—Is the program reasonably simple to administer?

—Does it take advantage of the logical opportunity to provide sales and/or product training as an integral part of the program?

—Is the contest budget realistic and commensurate with the goals?

A CONFERENCE on market research, on a pan-European scale, is being organized by the European Productivity Agency (2, Rue Andre Pascal, Paris XVI) for March 1959. Various West European trade associations expect to send 100 delegates.

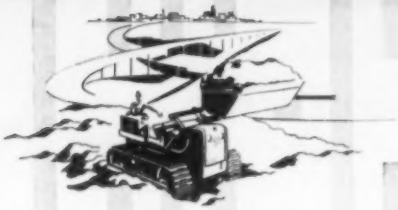
RETAIL SALESMEN should not be trained in predetermined patterns of selling—how to approach the customer, determine need, overcome objections, etc. This is the advice of U.S. sales consultant Anne Saum of Anne Saum & Associates, who says that this kind of training is a waste of time and effort. "Selling is not a job to be done by reflex," she says. "As long as human beings sell to other human beings, there will never be two selling situations exactly alike." (*Printers' Ink, Nov.* 14, *p*5)

SALES ADVICE also was the theme of a recent Monthly Letter of the Royal Bank of Canada:

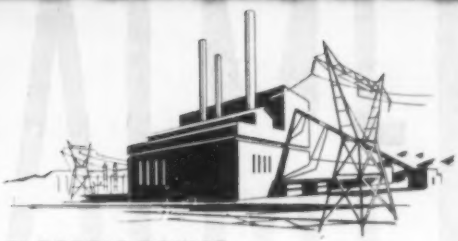
"It is evident that increasing business is not done overnight by blatant advertising or blitzkrieg selling. It is a painstaking process demanding constant courage, active imagination and cheerful persistence. There are few short cuts, but rather a world of planning, study and thought. Fate seldom sides with the man who is not equipped with all of these."

COMMERCIAL VITALITY is hard to measure, but one index is the consumer's readiness to accept change, according to management consultant Peter Drucker. On a recent visit to Britain, Drucker noted strong evidence of vitality in the British economy in such things as the rate of change in women's fashions, and the successful marketing of prepacked foods and pre-cooked meals.

A big U.S. department store, Marshall Field & Co. of Chicago, is opening an office in Tokyo to expand purchases from Asian countries. . . . **A British company,** Cranbux, Ltd., of Norwich, has successfully marketed a new brand of toothpaste in the U.S. called Moulin Rouge, "Le dentifrice cosmetique"—taking advantage of the reputation for quality enjoyed by French cosmetics.

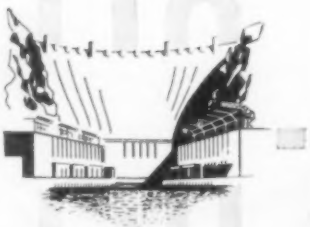


CONSTRUCTION



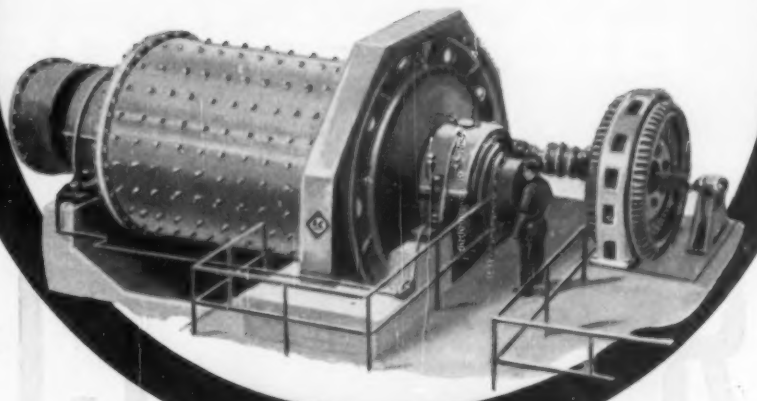
ELECTRIC POWER

Specialized equipment for every industry
. . . to help the world produce more . . . live better

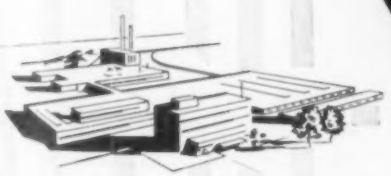


PUBLIC WORKS

MINING



AGRICULTURE



MANUFACTURING

Crushing mountains

Mountains of various raw materials, needed to fashion the goods modern civilization demands, are moved and processed by Allis-Chalmers wide range of mining equipment. Gyratory crushers, jaw crushers, grinding mills, vibrating screens, rotary kilns, pumps, compressors—and the necessary electrical equipment—are in integrated service in mining operations throughout the world. And Allis-Chalmers heavy-duty materials handling equipment—crawler tractors, tractor shovels, scrapers, wagons, graders—assure a steady flow of material from mine to processing machinery.

Through subsidiary companies and license agreements with other firms, certain types of Allis-Chalmers equipment are manufactured abroad for purchase in leading world currencies. For more information, contact the A-C distributor in your region, or write Allis-Chalmers International, Milwaukee 1, Wisconsin, U.S.A.

ALLIS-CHALMERS INTERNATIONAL

A Division of Allis-Chalmers Mfg. Co.

A-5832B

Higher productivity
Better quality
Reduced costs

High-frequency heating is the most successful tool in today's thermal treatment of materials and a most promising one for the future. The range of Philips high-frequency heating equipment is the key to faster and cheaper production and a better and perfectly constant quality of products under clean and safe working conditions. Philips high-frequency induction heating generators provide the ideal solution for all kinds of thermal processing problems, where high concentration of energy or short heating times are required e.g. surface hardening, brazing, soldering, annealing or melting.

PHILIPS

Embodied in every Philips product is the experience gained by 58 Philips companies throughout the world.

ask philips first

Photo by courtesy of THOMASSEN & DRIJVER BLIKEMBALLAGEFABRIEKEN N.V. (Packaging Industries Ltd.) - DEVENTER - HOLLAND

One out of many....

A substantial quality improvement was the result of the introduction of Philips H.F. generators in the production process of hamcans by THOMASSEN & DRIJVER BLIKEMBALLAGEFABRIEKEN N.V. of Deventer - Holland. H.F. soldering of the flanged bottoms and lids provides a perfectly hermetic air seal, protecting the fairly expensive contents from any bacterial contamination. By adopting H.F. soldering methods, higher production was achieved with less manpower. Overall tin consumption and percentage of rejects were drastically cut down. Here again — thanks to Philips equipment — a general reduction in production costs.

PHILIPS

N.V. PHILIPS' GLOEILAMPENFABRIEKEN — EINDHOVEN — HOLLAND

(Organizations and agencies all over the world)

Technology

Motors Withstand Intense Heat

Scientists have developed a new system of insulation that allows them to heat electric motors to 550 C for extended periods without damage. Motors tested at the laboratories of U.S.A's Westinghouse Electric Corp. have run at near this temperature for as long as 1000 hours. The system uses special insulation made of glass fiber, mica and phosphate. Motors are impregnated with a slurry of phosphate, Wollastonite, silica and other chemically reactive materials. Initial use of the motors will be in supersonic planes, rockets and missiles, but they later may go into a wide range of industrial uses. (Electrical World, Nov. 10, p 84)

Inter-Country Exchange of Technical Data

The U.S. Government plans on stationing scientific attaches in London, Paris, Bonn, Stockholm, Rome, Moscow, New Delhi, Tokyo, and possibly Rio de Janeiro. Each attache will have a deputy with a scientific background different from his. Attaches and their deputies will arrange a massive exchange of technical and scientific data between organizations in the U.S.A. and abroad. (Product Engineering, Nov. 17, p 7)

New Advances in Cold Extrusion

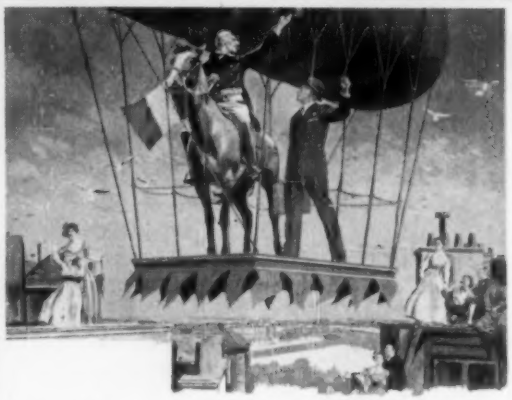
A combination of hot forging and cold forming is being used by American Car and Foundry, U.S.A.. to make superior 20-cm artillery shells with less starting steel and less machining. The process basically consists of one hot forging step and three cold forming operations. A steel billet is forged into a cup at a temperature of about 1200 C. Then comes the first of three "phos-lubrication" treatments. The part is coated with zinc phosphate, which acts as a host to a soap lubricant, then coldly pressed through a shape-forming die. Other treatments precede coining of the shell base and the nosing operation. (American Machinist, Nov. 3, p 91)

Bread Baked In Wrappers

Bakers of Bonn, Germany, are baking loaves of bread in their own wrappers (photo). Wolff & Co. treats ordinary cellophane so that it can be put in a 275 C oven without burning. The dough is roughly hand-shaped and placed in cellophane. As the dough rises, it completely fills out the wrapper. Wolff reports that the loaf is baked well, has a crisp crust, but doesn't hurt the wrapper. (Food Engineering, Nov., p 24)

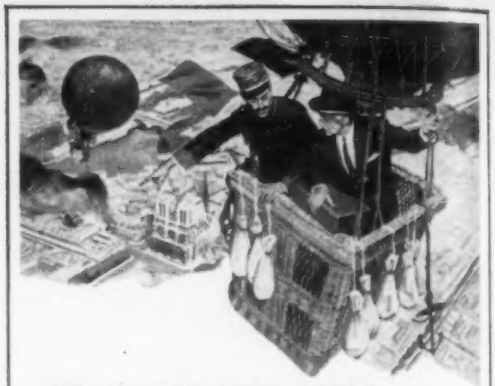
Britain Gets New Technical College

An Industrial College of Technology with university status, soon to be established by Britain's National Council for Technological Awards, will be aimed at stepping up advanced training for British industry, McGraw-Hill World News reports. The new institution will be a college without a campus. Students will continue working with the companies employing them while taking three years of advanced study and research at established universities and technical colleges, under expert supervision. Satisfactory completion of a project will result in a degree equivalent to a Ph.D.



What can Pierre Testu-Brissy teach the Managing Director?

1798—first horse to be air-lifted. In Paris, France, Pierre Testu-Brissy went aloft in a balloon, seated on a specially trained horse.



What can the "Paris Airlift" teach the Managing Director?

1870-1—world's first large-scale airlift. During the Franco-Prussian War, 65 cargo-carrying balloons helped in relief of the siege of Paris. 10,765 kilograms of mail and 164 persons were carried safely beyond enemy lines.

What can the Vizier of Baalbek teach the Managing Director?

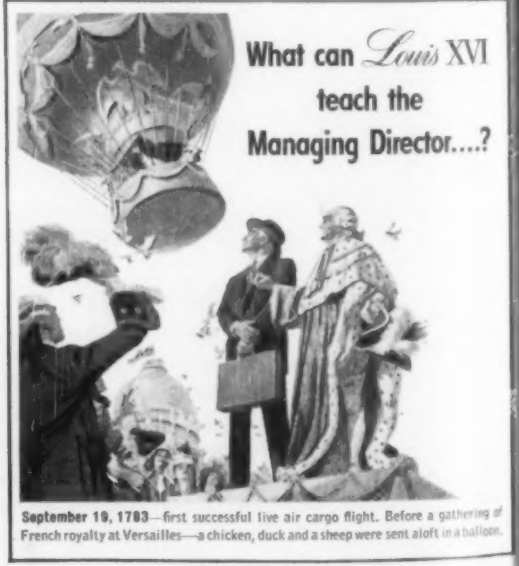
990 AD—first recorded air cargo flight. The Caliph of Cairo craved fresh cherries. The Vizier of Baalbek shipped them by air, fastened to the legs of 600 carrier pigeons. Distance flown: 400 miles.

What can Lord Brabazon teach the Managing Director?

1909—first live cargo flight by plane. British pilot J. T. C. Moore-Brabazon (later Lord Brabazon of Tara) tied a wastepaper basket to a wing strut of his Voisin biplane. Then, using it as a "cargo hold," he air-lifted one small pig.

What can Sir Walter Windham teach the Managing Director?

1911—first official airmail flights. A service inaugurated by Sir Walter Windham carried the mail from Allahabad, across the Ganges to Aligarh.



What can *Louis* XVI teach the Managing Director....?

September 19, 1783—first successful live air cargo flight. Before a gathering of French royalty at Versailles—a chicken, duck and a sheep were sent aloft in a balloon.

What can Louis Bleriot teach the Managing Director?

1909—first successful over-water distance flight by airplane. In a fragile monoplane Louis Bleriot crossed the English Channel from Les Baraques to Dover. Distance: 31 miles. Time: 37 minutes. Cargo: a silk flag!

What can the ZR-3 teach the Managing Director?

October 15, 1924—first transatlantic crossing by lighter-than-air cargo carrier. The German dirigible ZR-3, "a commercial vessel, capable of transporting a liberal quantity of cargo across the Atlantic or farther," flew from Friedrichshafen to Lakehurst.

How the Managing Director learned "The Economics of International Shipping"

Shipping by Clipper* Cargo is not a "blue sky" idea—it is practical, modern marketing!

IT WAS PROVED 160 YEARS AGO: almost anything can be shipped by air!

Today, top executives are taking that lesson one step further.

They are proving that overseas air cargo is a way to build business, increase a company's potential at home and abroad.

Re-examine the facts:

Now it is possible to ship by air for less than by sea. Air cargo saves on crating, has no "hidden" charges.

Swift air delivery opens new markets, allows you to reduce inventory and eliminate overseas warehousing.

Air cargo shortens the gap between manufacture and delivery, smooths out production flow, speeds up payments.

And only Pan American offers the Pan Am Profit Lift—the most comprehensive service of ANY overseas cargo carrier.

GET A FREE COST ANALYSIS

Ask your Shipping Agent, forwarder or Pan American office today. Discover the profit of putting your shipping problems in the experienced hands of Pan American. *Trade-Mark, Reg. U. S. Pat. Off.

PAN AM
CLIPPER CARGO
FASTEST DELIVERY TO ALL THE WORLD

Two Cases Where Modernization Pa

• A large U.S. company making office machines

ANY COMPANY, small or large, welcomes fast returns on its modernization investments, especially in times of business recession.

Smith-Corona, Marchant, Inc., one of the largest U. S. manufacturers of office machines, was forced last winter to demand faster returns from its modernization projects (see IMD, November). And, thanks to good selection and engineering ingenuity, it got them. The five examples described here represent an expenditure of $86,000. But they will pay for themselves from savings in less than a year, two in as little as four months.

Savings came fastest from the five-ton press pictured below. The $9000 Smith-Corona paid for it was recouped in four months.

The machine enables a typewriter's 46 identification buttons to be fastened all at once, instead of individually. The new arrangement calls for the pre-assembly of key levers at an adjacent work station. The press operator places a key-lever set into a die carrier, then slides it under the press head where a slotted die properly positions each lever. If the carrier is improperly positioned, microswitches keep the press from tripping.

Next, the operator positions a nest carrying 46 buttons over the keyboard levers in the slotted die. Tripping the press brings down a bank of stepped punches to secure the buttons.

LABOR-SAVING PRESS sets 46 keys at once, paid for itself in four months.

After removing the lever assembly with key buttons in place, the operator sends it on to the next stage. Here springs and links are attached. A total of 572 parts go into each standard keyboard package before it goes into a machine.

Another installation, a six-headed multiple drill specially built at a cost of $17,000, is expected to pay for itself after six months. Formerly it took 13 machines to do the two jobs now performed on one unit.

The new machine drills, spots, faces and counterbores 23 holes on typebar segment mountings for manual and electric typewriters. Then it taps all but four of these holes in a second operation after the operator has changed the heads.

The drill automatically goes on to the next operation when the workpiece has been positioned and secured with air clamps. When the six multiple heads have run through their predetermined cycle, the air cylinders open automatically and the operator removes the mountings.

Materials-handling methods also come in for their share of modernization. Smith-Corona has a $50,000 plan underway to make its final assembly, packing, storage and shipping department more efficient. Estimated savings will pay for the whole project in less than a year. One of the most impressive benefits is a saving of 900 square meters of floor space in the assembly area alone.

As part of the plan, new conveyor runs have been built, some with two or three tiers. Apart from saving a lot of floor space, these extra tiers make it easier for rejected units to be returned to previous operations for repairs.

Smith-Corona has installed a number of overhead bridges, too, to avoid disturbing normal aisle traffic. One of these, 7 meters long, affords a 2-meter clearance over a cross aisle leading to an elevator entrance. The typewriters, on masonite pallets, approach and leave the bridge on a roller conveyor and travel over it on a power-driven belt at 22.5 cm./sec.

Only one operator instead of two is needed to work another semi-automatic machine, a $9000 indexing unit which the company says will pay for itself in a year. It enables automatic spin fastening of two tiny studs to a steel link to be done in only two seconds. This is how it works: A vibratory hopper feeds tiny studs to two cavities on the indexing table through flexible copper tubes. The operator fits the link over two studs as they index past her work station. Soon afterward two spinning heads at successive stations, operating under 36 kg. of pressure, secure the studs. At the next station the link assembly is drawn from the table by suction.

The operator controls the working of the indexing table with her foot.

Change of design of a typewriter part dictated another modernizing step. When the tabulator keystem guide was redesigned old assembly methods became obsolete. A way had to be found to position the guide bar on five levers before forcing four key tops in place. Formerly, the key tops had been assembled to levers with specially designed pliers, then fitted to the guide bar.

To make the new assembly method as simple as possible, company engineers designed a pneumatic fixture. Its cost of $1000 is estimated to pay off in four months in labor savings. Now, to assemble a keystem guide, the operator places four key buttons in the fixture cavities, fits five levers in the holding nest, and places the guide bar over the ends of the levers. When she sets the pneumatic system in motion with two release levers, 90 kg. of pressure secures the tops to the levers. (*Factory Management & Maintenance, Nov,p150*)

Paid Dividends Fast

• A small Puerto Rican company making beds

UNLIKE THE AMERICAN FIRM described opposite, Puerto Rico's Royal Bed & Spring Co. suddenly woke up to modernization under new management and the threat of competition.

For 15 years Royal Bed & Spring had been producing low-priced beds for a limited market. But when Carlos and Tomas Mendez, sons of the firm's founder, succeeded to control of the company, they realized they would have to modernize if they were to meet competition. At that time the beds cost $2.25 a unit to produce. Today the same unit costs $0.60.

A move to a more spacious plant site was their first step. But, by itself, this change of address failed to increase production appreciably. At this point the Puerto Rican government's Dept. of Industrial Services lent the help of its consulting experts, who at once advised the purchase of new equipment and, even more important, the adoption of modern materials-handling methods.

The first improvement was an elementary one that should have been adopted years ago. Raw material for the beds—cold rolled-steel tubes about 550 cm. long—used to be stored in a shed outside the main plant. Now they are carried by truck directly into the main freight entrance and stacked at arm's length from the cutting machine operator. A common-sense step—but, in the words of the company president, "We were so close to our confusion that it took outsiders to come in and point out to us the obvious improvements."

The next move was to replace the obsolescent cutter with a clean-shaving, modern abrasive machine which did away with hand filing of the rough edges. This realized an average saving of 8 cents per bed.

Another new machine to be installed was a $12,000 automatic bender with a capacity of 250 bends per hour. Although Royal Bed operates the machine at an average hourly speed of only 175 bends, this still represents a production rate four times faster than that of the previous bender. And at the current wage of 75 cents an hour for the bending machine operator, this means that—but for the new machine — Royal Bed would be spending 6 cents per bed for bending operations. Instead the actual cost is only 1½ cents.

An important sidelight: None of these new machines demanded much special training. The men very quickly learned how to work even the relatively complicated bending machine.

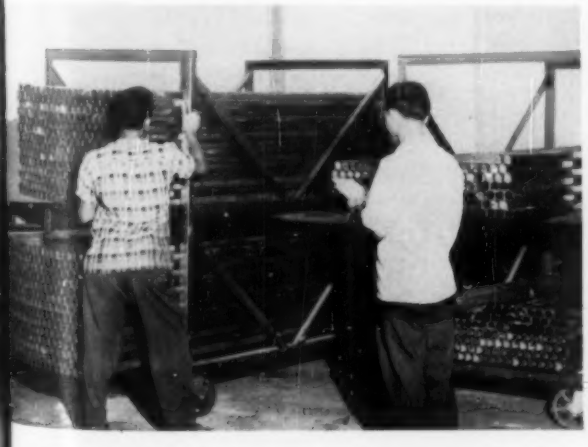
The most striking economies at Royal Bed, however, have been the result not of modern machines but of improved organization. Sloppy materials handling, especially, was impeding the company's production. The solution put forward by the time and motion experts was an extremely simple but important one. The stock carts were fitted with different wheels and wooden sides, angled outwards for maximum ease in handling materials. Cost of the whole job, including the purchase of the wheels, was only $700 for 15 carts.

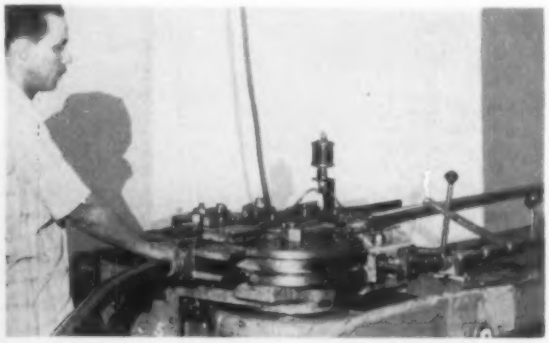
That Royal Bed has been able to reduce its labor force from 57 to 18 and increase its production by over 15% a year is due mainly to materials-handling improvements. In materials handling alone, the company was able to dispense with 17 workers.

Other suggestions helped to cut production costs, mainly in the painting phase of the work. For years, the beds had been paint-sprayed outside the plant, with a lot of consequent waste. Now two pits have been built where the bed rails are washed, 75 at a time, and dipped in a bath of air-drying enamel. Complete with cables, block and tackle, the pits cost only $800 and brought the spraying cost down from 4 cents to 1 cent each.

The next step concerned the painting of the bed panels. Up to now, workers had spent 25 minutes sanding each frame before painting. Now the baked frames are given a base coat that allows the design to be painted on directly.

Besides reforming the production layout, Royal Bed also introduced better cost accounting and cost analysis techniques, equipment design and product research. The firm has now dropped six models whose demand did not warrant their production. (*Ingenieria Internacional Industria, Nov, p58*) ●





AUTOMATIC BENDER realized savings of 4½¢ per bed.

SIMPLE CARTS for materials handling (left) cost only $700 but helped to reduce the workforce from 57 to 18.

profitable pharmaceutical production

WITH STOKES TABLETTING MACHINES

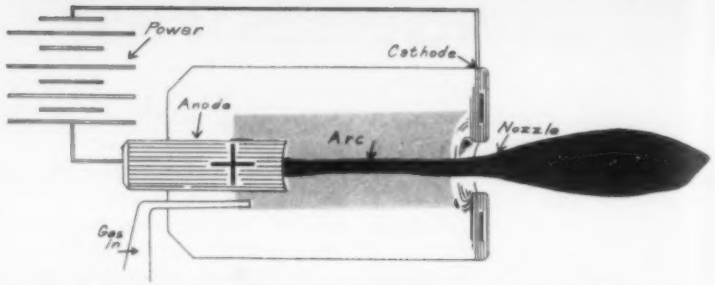
Eli Lilly & Co. uses this Stokes Model 540 rotary tabletting machine to produce a variety of products at rates up to 130,000 per hour. Stokes rotaries afford peak economy for high-speed, precision tablet production. Set-up and adjustment are the easiest ever offered.

Customers throughout the world profit from Stokes' unparalleled experience as designers and builders of process-engineered machinery and equipment . . . including pharmaceutical tabletting machines and accessories; freeze dryers; chemical process equipment; plastic molding and powder metal presses; and vacuum-metallizers, furnaces, dryers, systems, and pumps.

Stokes also offers extensive research laboratory and customer advisory facilities. Your inquiry is invited.

International Division
F. J. STOKES CORPORATION
5500 Tabor Road
Philadelphia 20, Pa.

STOKES



Temperatures of 17,000 C are sustained in arc of plasma gun.

Plasma Guns Are Blasting New Production Paths

FROM the space travel laboratories comes a new source of heat for the metalworking industry—the plasma gun. The gun "burns" plasma at sustained temperatures of nearly 17,000 C, a range in which any known element will vaporize. Extremely widespread applications are foreseen for the gun, which is just now being produced by several American firms.

What is "plasma", and what can plasma guns do?

Plasma (which, by the way, has no connection with blood plasma) means any ionized gas raised to a temperature at which it no longer responds to the recognized gas laws. Molecular gases break down into atoms and the atoms become electrically charged ions, a "plasma" of ions and free electrons. Plasmas respond to magnetic fields and, by electromagnetic "valving", can be focussed, accelerated, slowed down, shut off, and controlled in a variety of other ways.

Plasma is not new to scientists, but applications of it have developed only recently, with the advent of high-temperature and missile propulsion problems. The "gas" in any electric arc is plasma, but it is not energized enough to create these high temperatures. Now plasma can be energized and adapted to many applications, which metalworking has so far no more than glimpsed.

Opens New Fields

Since the plasma achieves temperatures that will vaporize any known substance, many elements like tungsten, molybdenum, silicon, carbon, chromium, titanium, can be deposited in controlled, uniform layers on metals, ceramics, intermetallics, even on some plastics.

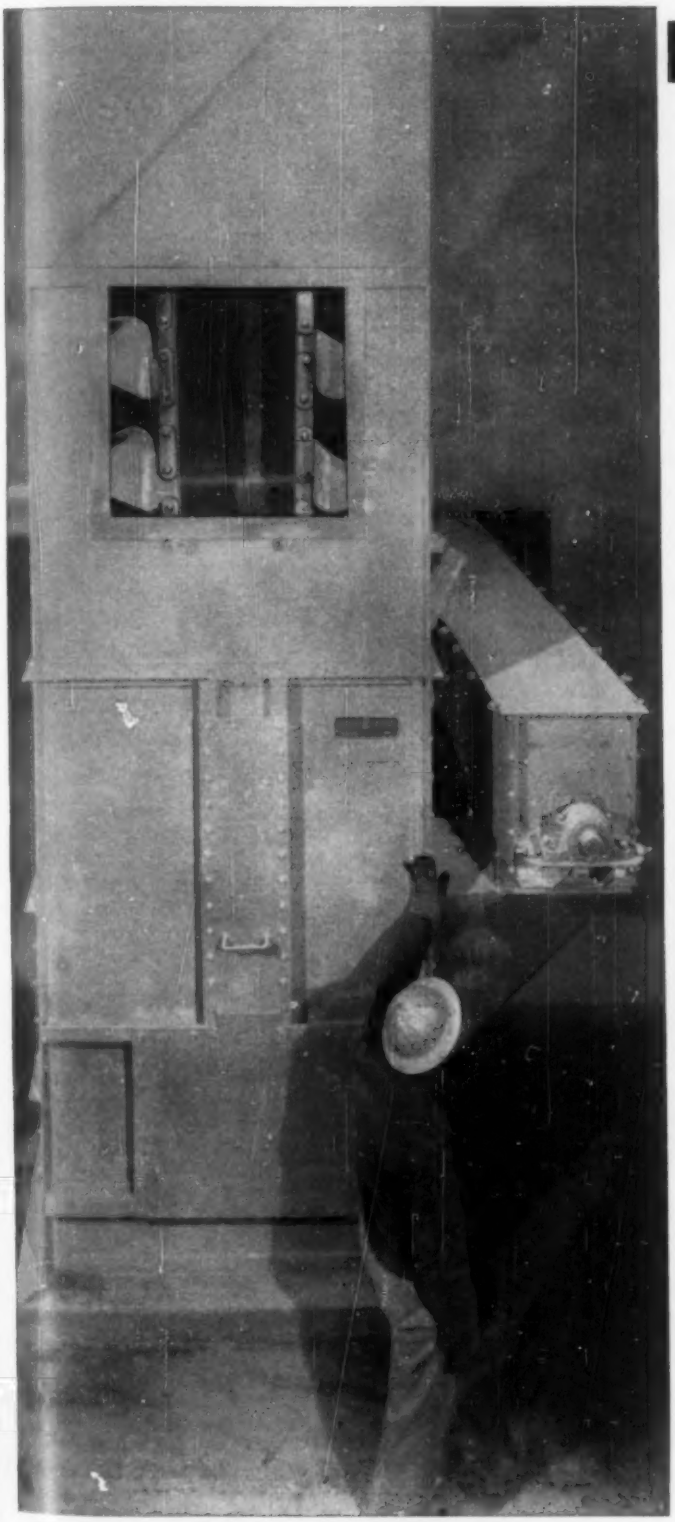
Even where coatings can be successfully flame-sprayed, the plasma process has advantages. A plasma-applied coat is only one half to a third as porous as a flame-sprayed coat of the same material. And further improvement is expected.

Producing new materials is something else the plasma gun does with ease. Whole new fields of high-temperature chemistry may result. To spray-coat with tungsten carbide, researchers fed both materials, properly proportioned, simultaneously into the jet. Though the desired properties were obtained, analysis showed the resulting material had unusual X-ray powder patterns which could not be identified as tungsten or as either of the recognized tungsten carbides, WC or W_2C.

The gun itself is simply an arc-enclosed chamber with an orifice, powered by a conventional d.c. welding generator (see picture). Gas is injected into the chamber at very high pressure and velocity and ejected through the nozzle as a foot-long beam of highly excited particles, which appears as a brilliant "flame".

The very high temperature is achieved in this way: A great quantity of energy is absorbed from the arc by the plasma as the atoms of gas are transformed into ions. When these ions return to atomic form, as at the surface of a workpiece, they give up this energy in the form of tremendous heat. Hence the 17,000 C—which, incidentally, is not the top limit nor accurately measured as yet. (*American Machinist, Nov.* 3, *p*81) ●

No assembly problems with bucket elevators LARGE or SMALL!



LINK-BELT makes all elements for bucket elevators

RESULT:
easier installation
smoother performance

If bucket elevator components don't match perfectly, time and effort needed for assembly can send installation costs skyrocketing. And if misalignment isn't corrected, it soon shows up in bucket and casing wear, undue drag and friction, excessive maintenance and downtime.

Integrated Components

Link-Belt prevents these costly installation and operational headaches . . . eliminates them in the *factory*, not in the field. Making *everything that goes into a bucket elevator*, Link-Belt carefully designs, manufactures and integrates all components for perfect, ready alignment. As a result, unnecessary erection costs and difficulties are avoided . . . efficient, long-lasting elevator performance is assured.

One-Source Service

Equally important, the completeness of Link-Belt's line makes it easy to select the proper type bucket elevator and components best suited to your material and capacity requirements. Link-Belt will erect your elevator and accept full installation responsibility. For complete details, contact your Link-Belt representative. Or write us direct.

LINK-BELT

BUCKET ELEVATORS

LINK-BELT COMPANY: Engineers • Manufacturers • Exporters of Machinery for Handling Materials and Transmitting Power • Established 1875.

EXPORT DIVISION: Dept. 159-IMD, 233 Broadway, New York 7, U.S.A., Cable Address: Linkbelt—New York • Australia, Marrickville (Sydney) • Brazil, Sao Paulo • Canada, Scarboro (Toronto) • South Africa, Springs • Representatives Throughout the World. 14,010-E

Electrostatic Spray Gun for Hand Operation

A new hand-operated electrostatic spray gun allows the cost advantages of electrostatic paint spraying to be applied to manual spraying jobs.

Electrostatic spraying systems cut paint costs considerably—as much as 75% in some cases—since the paint is drawn directly from the nozzle onto the article being painted. But up to now these systems have been limited to automatic production-line installations, mainly because the large voltages required are a little tricky to handle. Refinements and voltage controls in this model, the manufacturer reports, make it safe for hand operation.

The gun can be used to coat any metal article, and some non-metallic articles. Most types of industrial coatings can be applied, except for some metallic paints with high electrical conductivity. **Ransburg Electro-Coating Corp., Barth & Haro Sts., Indianapolis, Indiana, U. S. A.**

A Versatile New Polymer Chemical

Carbopol, the first of a new family of polymers, is a versatile agent to be used for thickening, suspending, dispersing, and emulsifying. It comes in the form of a fluffy white powder, soluble in water.

The new polymer, which is nontoxic and relatively unaffected by temperature or aging, will have many applications in waterproofing and oilproof coatings, printing inks, pharmaceuticals, rubber cements. In metal drawing, it can suspend heavy metal compounds used in drawing lubricants. A solution of Carbopol has excellent body, yet it can be pumped or stirred as readily as a light material. **B. F. Goodrich Chemical Co., 432 Derby Place, Shelton, Conn., U. S. A.**

Relays Instructions in the Factory

The AIMO system (Audio Instructed Manufacturing Operation) is a new way of relaying taped voice instructions to factory workers. Two Dictaphone machines make up the main parts of the system: One records the instructions, the other reproduces this pre-recorded information for the operator to follow.

A special feature of the recorder is a switch that allows the instructor to give separate "blocks" of instructions, one at a time.

The reproducing unit is used by the worker on the job site. It works like the play-back of an office dictation machine.

For listening to the instructions the worker can use either a standard head set, an external loudspeaker, or a special portable receiver. **Dictaphone Corp., 420 Lexington Ave., New York 17, U.S.A.**

Gigantic earth-mover . . .

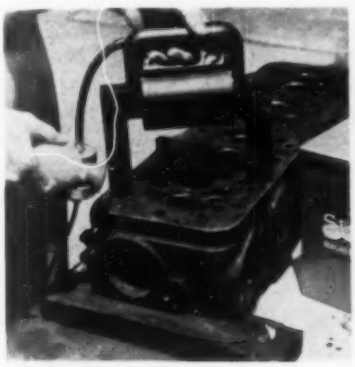
. . . more than 300 meters long, lifts 130 tons of earth in one operation. The manufacturers say the machine could transform methods of constructing dams and canals. A single operator with one hand on a panel of pushbutton controls can dig a load of earth the size of a railway wagon, haul it to another place, and spread the load evenly. The scraper moves on "electric wheels"—each wheel has a powerful d.c. electric motor geared to the rim. Power comes from two 600-hp. diesel engines. **R. G. LeTourneau, Inc., Longview Texas, U. S. A.**

Gargantuan shovel . . .

. . . dwarfs an 11-ton Transit Hoe climbing into its bucket during excavations at a Kentucky coal mine. One of the largest land excavators in the world, the River Queen shovel stands about as high as a 13-story building, has a 42-cubic meter dipper. In a single bite it can remove 80 tons of dirt and rock and stack it up nearly 90 meters from the digging point. Shovels in the series (called 1650-B) can be equipped with dippers ranging from 30 to 50 cubic meters. **Bucyrus-Erie Co., South Milwaukee, Wisconsin, U. S. A.**

Easy-to-Work Dictation Machine

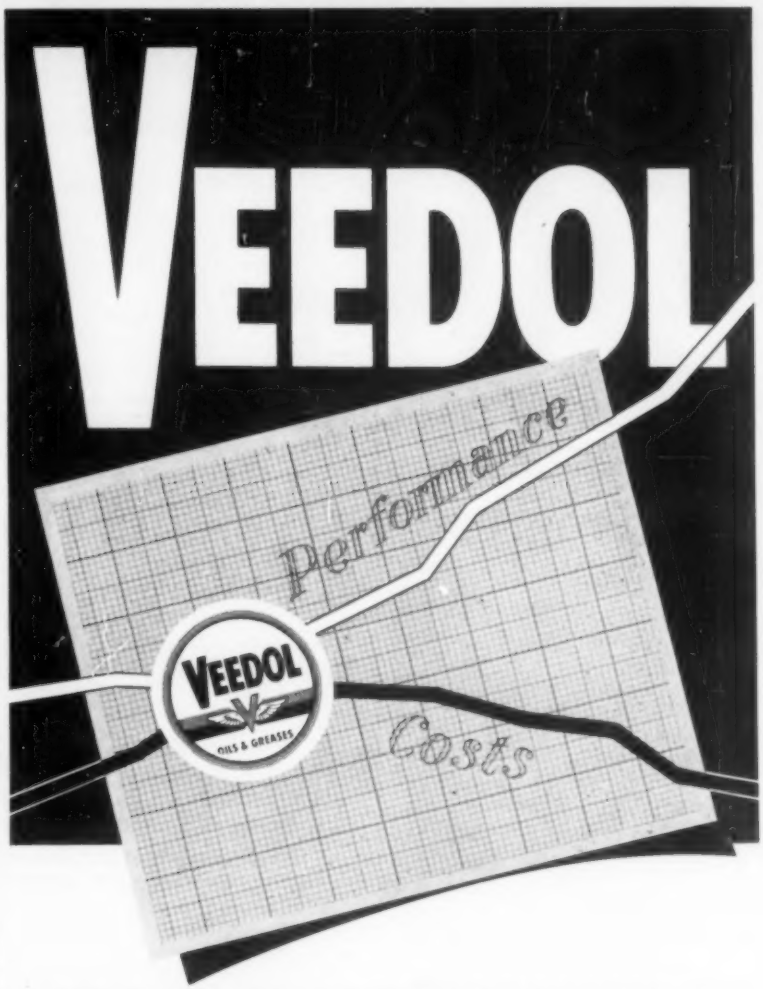
A new dictation machine has been produced in the Netherlands. It works like a tape recorder, but with the difference that the magazine spool and take-up spool are housed together in a plastic case. The case does not need to be opened, and when set into the machine it automatically finds its correct position—which simplifies recording and playback. When the spool is full the case is inverted at the turn of a handle and the second side can be used. **Philips Verkoop, Eindhoven, Netherlands.**



Portable Flaw Detector

This magnetic crack detector, which weighs 9 kg. and is completely portable, picks up surface faults on any ferrous casting. The area to be inspected is made part of a magnetic circuit of high density. Then it is sprinkled with powdered iron. Any crack or flaw in the test area acts as an air gap which prevents the magnetic lines of force from completing the magnetic circuit in the normal way. The lines of force in the area of the crack cause the iron powder to collect there: if the powder is colored, the cracks will of course stand out very clearly.

The unit operates from either a 110 a.c. line or 12 or 6 volt battery and therefore makes crack inspection possible in areas where electric lines are not available. It is not affected by temperature or humidity, and has proved just as effective on automotive castings like heads and shafts as on large industrial machinery. **U. S. Casting Repair Corp., 2500 E. York, St., Philadelphia, Pa., U.S.A.**



FOR HIGHER PERFORMANCE...
LOWER COSTS

The unquestionable uniformity and quality of VEEDOL oils and greases results in their world-wide acceptance as the lubricants for maximum protection ... top efficiency ... lower operating costs. You can be sure that no matter what kind of machinery you use, or under what conditions it operates, VEEDOL performance-proved oils and greases will keep down wear and help you avoid costly shutdowns.
Your nearest Tidewater distributor will be pleased to help you select the lubrication best suited to solve your specific problems.

Now sold under the name that spells top quality:

TYCOL INDUSTRIAL LUBRICANTS → VEEDOL OILS & GREASES

TIDEWATER OIL COMPANY
SAN FRANCISCO-NEW YORK

Pace-Setters for Progress

Speeding work on homes or highways...buildings or bridges, Rex Adjusta-Wate Moto-Mixers set the pace for construction progress. They cut the cost of concrete mixing and hauling... save money for both the owner and his customers. Years ahead in design, Rex Moto-Mixers provide unequaled advantages in operation, maintenance and dependability.

Why not have your local CHAIN Belt Distributor give you the complete story on Rex Truck Mixers or the other items in the complete Rex line of concrete mixing, hauling, placing, and concrete road building equipment. Remember, CHAIN Belt also makes the Rex line of chains, sprockets, bulk handling conveyors, water and waste treatment equipment, and Shafer Bearings. CHAIN Belt Company, 4654 W. Greenfield Ave., Milwaukee 1, Wis., U.S.A.

CHAIN BELT COMPANY

REX

EXPORT OFFICES: Milwaukee 1, Wis., and 19 Rector Street, New York 6, N.Y., U.S.A.
Distributors in all principal cities.
Cable Address: "BELTCHAIN"

Financial Digest

Small businesses seldom get much attention from the loan departments of banks. Many are marginal credit risks. And they often need sound advice more than credit.

A promising solution to this problem has been found by the U.S.A.'s Merchandise National Bank of Chicago. Willing to trade current service for future business, the bank has opened a Business Counseling Department that gives free advice and not merely a "Yes" or "No" to credit applications from small businesses.

Staff specialists visit the business to get a full understanding of its problems. The advice to one machine shop was to introduce a line of sporting goods products, the magazine *Banking* reports. More usually, however, the advice is concerned with sound financial planning—supported by credit in all reasonable cases.

Small loans averaging about $4,600 have been made—and more than two-thirds to firms with poor credit ratings.

Profile of a typical company served by the Department: six years old; five employees; annual sales of $51,000; total assets of $31,000, with 4% in cash, 23% in receivables, 9% in inventory, and 54% in equipment.

•

Aims of Industry, Ltd., a British non-profit organization devoted to promoting private enterprise, has announced a scheme that will make it much easier for workers in Britain to invest in common stock securities.

Participating companies will set up a trust organization to buy common stock shares on the open markets—its own shares and those of any other company participating in the plan—convert them to bearer certificates and sell them to workers.

Legal and tax problems are reported to have been cleared.

Buying would be easier for the worker because he would not have to go through a broker—and he would save the broker's heavy commission on small orders.

One firm, Tate & Lyle, Ltd., a large sugar refinery, says it will put the plan into operation early this year, and several other large firms have expressed interest.

One criticism of the AOI scheme—and all employee shareholding schemes—as expressed by *The Economist*, is that "it invites the worker to lock up his capital in the firm from which he gains his livelihood." But if enough companies join, there will be some opportunity for diversification.

•

Wall Streeters are talking about an experimental method of evaluating common stock prices developed by a U.S. investment counseling firm. The calculations are complicated, but here is the idea in brief:

A corporation's "capital efficiency" is figured from its past performance—how much capital it has needed to generate each $1,000 in new capital. This indicates how much capital can be generated from capital on hand.

How does the anticipated return compare with the anticipations of the stockholder—as reflected by the price of the stock and price-earnings ratios? This gives one indication whether the stock is under or overpriced.

When processing Copra...

or any oleaginous material...

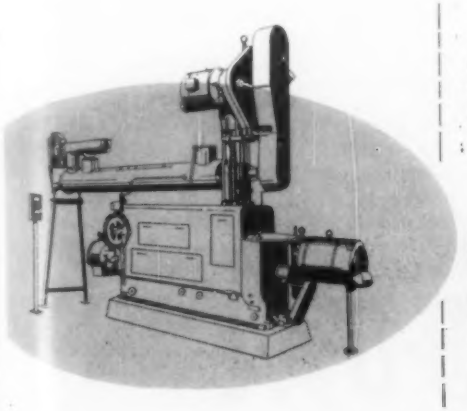
EXPELLERS

PRODUCE MORE OIL

- Oil millers processing copra in various parts of the world prefer Anderson Expellers. Why? Because they can produce more oil from a ton of copra with their Anderson Expeller. One Expeller can press 50 tons per day of copra and produce a cake containing no more than 6% residual oil. This means a capital investment reduction; operating, maintenance and supervision costs are reduced.

One Expeller will do the work of two conventional screw presses.

In addition to increased production rates and greater extraction, Anderson Expellers incorporate many other cost saving advantages.



FREE CATALOG

Write today for your copy of Anderson's catalog.

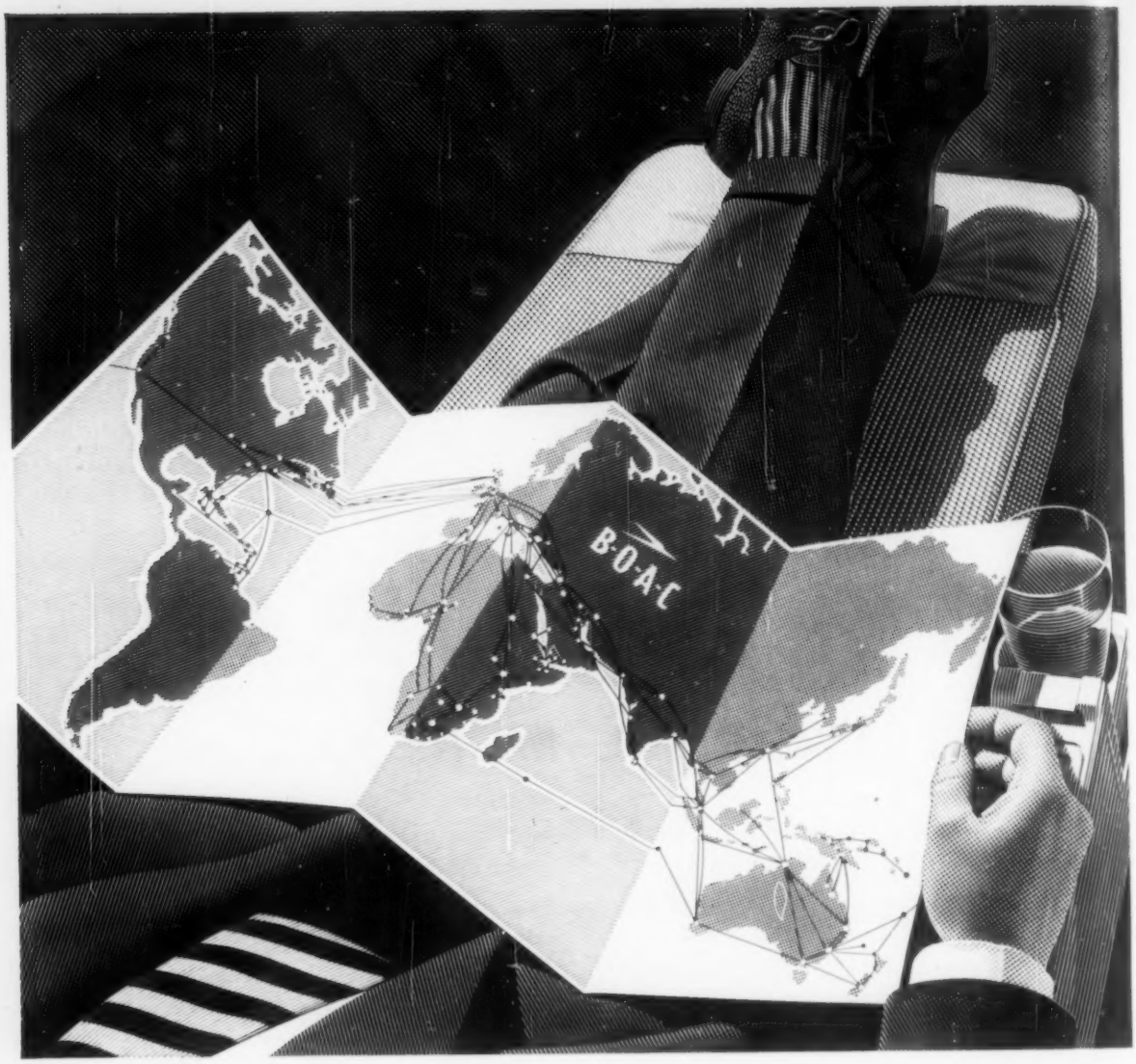
THE V. D. ANDERSON COMPANY

division of International Basic Economy Corporation

1962 WEST 96TH STREET • CLEVELAND 2, OHIO, U.S.A.

**Trade Mark Registered in Foreign and U.S. Patent Offices.*

ONLY ANDERSON MAKES EXPELLERS*



One thousand routes

AROUND THE WORLD

WHEREVER you live, BOAC is your link with the rest of the world! Trace your way along its widespread route network to major destinations on all six continents. Whichever route you choose, BOAC offers you supreme value in air travel.

Because BOAC is a *world* airline, it builds its fleet with the world's finest airliners—such as famous jet-prop *Britannias* on world-wide routes and the incomparable new *Comet 4* jetliners across the Atlantic and soon to the Far East. Because BOAC has a "lofty" reputation to uphold, service aboard these airliners is unsurpassed. You will enjoy a unique blend of good food, comfort and truly *personal* attention.

Next time you fly, anywhere in the world, be sure to book by BOAC!

For full details of BOAC's world-wide routes and de Luxe, First Class, Tourist and Economy Class services, consult your local BOAC Appointed Travel Agent or any office of BEA, our general sales agents.

B·O·A·C

TAKES GOOD CARE OF YOU

BRITISH OVERSEAS AIRWAYS CORPORATION

Too Much Scientific Management?

There is evidence that modern industry may be creating immature, "money-oriented" employees.

MANY EXECUTIVES are suspicious of "democratic" or "participative" management, ideas advocated by the social scientists. If put into practice, they say, these concepts weaken the managerial function. Besides, the concepts have not been sufficiently tested in business situations.

True, perhaps. But what the social scientists are trying to say is important. Certainly businessmen should not summarily dismiss what conscientious scholars are finding out about the problems of management.

Social scientists say their research has demonstrated some serious deficiencies in the traditional business organization. Professor Norman C. Hunt of Edinburgh in a recent British Broadcasting Corp. Third Programme broadcast (*The Listener*, Oct. 2, p501) suggests that "many of the human problems which result in discord, loss of production, and even strikes are not really personality problems at all, but organizational ones." And he recommends a "radical review" of traditional organization.

The U. S. A.'s Chris Argyris (Yale University) goes even further. He charges that the mass-production organization is creating apathetic employees, and that the human personality is being stifled.

If these theories are correct, Argyris argues in *The Harvard Business Review* (Nov.-Dec., p107), "management is faced with one of the most difficult human problems ever to challenge man."

Professor Hunt cites a study of the relationship between production and inspection departments carried out by a psychologist from Edinburgh. According to the inspectors, when production men are under "inspection pressure" they fall back on a variety of complaints and excuses—which the researcher found surprisingly similar from plant to plant: "He can't do the job himself, so why should he criticize me?"

But when inspectors themselves come under the same sort of "inspection pressure," as when their firms were working under government contracts, they made the same sorts of complaints and excuses.

The main conclusion is that the production-inspection relationship tends to produce similar pressure on the people involved, and thus similar behavior. "It follows," comments Hunt, "that if the relation between production and inspection is organized in a certain way, then certain pressures are inevitable and certain kinds of behavior will result. In other words, we can take our attention off personalities and focus it upon the organization."

The question now becomes: Is there something inherent in organizations that causes resistance and makes tensions inevitable? Argyris' answer is "Yes."

What occurs in the majority of businesses today, according to Argyris, is the implicit signing of a "psychological work contract." It is as if the employee says to himself: "I want to be a healthy, creative human being; I cannot be and still produce what I am required to produce. Therefore, I will say 'to hell' with my total personality and place the major emphasis on money."

Argyris' thesis is based on a careful study of a successful, supposedly "healthy" manufacturing plant. The employees were considered to be extremely loyal and to produce adequately. Turnover and absenteeism were low. The employees expressed few grievances, and seemed satisfied with management.

After his study, Argyris concluded that these "indexes of health" tell nothing about the nature of the system itself—they are products of the system.

He found that the employees seemed to have no need for strong cohesive groups, no desire to be treated with dignity, to be creative, or to be involved. Their "love" for management, he believes, is related to the fact that it pays good wages, provides secure jobs, and "hardly ever bothers them."

To escape the tensions and frustrations of using only the surface abilities needed in a mass-production system, employees adapt by developing immature needs—in a "work world that ideally prefers them to behave like infants, they have finally capitulated and have adapted by becoming apathetic, indifferent, and non-involved."

Indeed, Argyris suggests that it is the psychologically healthy employee who often reacts by absenteeism, slowing down work, etc.

Management, in turn, reacts by strengthening its directive leadership, tightening controls, "selling" pseudo human-relations programs, and otherwise compounding the difficulty of the organization.

It becomes easy, however, "for both management and employees to de-emphasize human values and to operate on a quid-pro-quo basis of money, job security, and benefits." But this system produces and rewards indifference and non-involvement. And alienated, apathetic participants tend to make the organization "rigid, defensive, and highly resistant to change."

The social scientists agree, however, that much more research needs to be done on this problem of organization, and in developing more satisfactory patterns. For his part Professor Hunt is concerned with the possibility of reversing the trend of "scientific" management. He would consider—

—Decentralizing rather than centralizing.

—Increasing the significant content of jobs rather than subdividing them further.

—Harnessing group solidarity rather than trying to break it up.

—Putting more satisfaction into the work situation rather than expecting workers to find it outside. ●

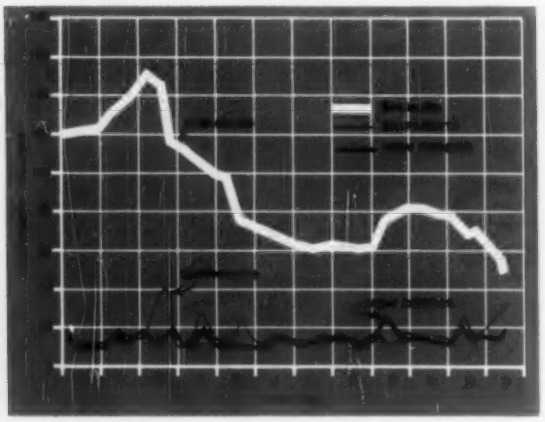
Graphs: An Important Tool for Ma

BASIC STATISTICS roll out of a business. But the existence of masses of data is not enough. The data must be analyzed; decisions must be made—quickly—by busy managers.

Graphs, simple enough in themselves, can make a major contribution to solving this complicated problem. They are a basic management tool. And they are constantly being improved and refined.

Graphs make it easier to follow the principle of "control by exception." They provide a "pictorial digest" of operations. Like a high-speed camera, they freeze trends and relationships. They twist the tail of operating deficiencies, and make them scream for corrective action.

The graphic controls on these pages, recently installed by an American industrial company, were explained in *The Controller* magazine (Nov., p522) by controller Thomas S. Dudick. He points out that graphic analysis is not necessarily done on a regular timetable, and the particular format is always subject to changes and improvements. But the samples here make a useful guide.

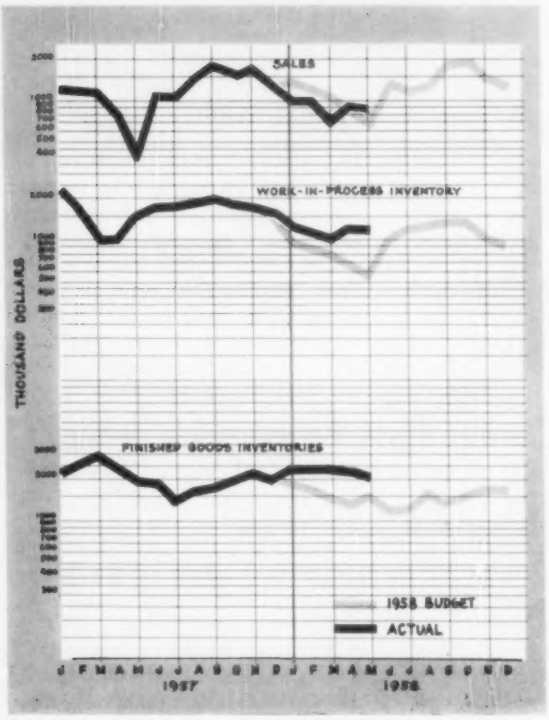


NEW ORDERS, SHIPMENTS, BACKLOG

Is the factory keeping pace with the intake of new orders? Shipments are obviously keeping pace with new orders (compare the bottom curves)—indicating that management can probably promise quicker delivery on new orders.

But the sharp downtrend of the backlog curve warns that a dangerous situation threatens if new orders continue to lag. A two-year graph would make it possible to check for seasonal factors.

Caution: In preparing graphs like this, be sure to use the same scale values for curves that are directly comparable. Using "millions" for the backlog curve and "thousands" for the new-orders curve would give a much brighter—but highly distorted—picture of the situation to management.


SALES
WORK-IN-PROCESS INVENTORY
THOUSAND DOLLARS
FINISHED GOODS INVENTORIES
1958 BUDGET
ACTUAL
J F M A M J J A S O N D J F M A M J J A S O N D
1957
1958

INVENTORY CONTROL

The objective here is to compare sales performance and inventory investment against the projected budget. Semi-logarithmic paper is used because relative changes are more significant than arithmetic changes in this case—and it is always the case when variables of different magnitude are involved.

With this type of control, it is much more difficult to explain away deviations from budget for reasons that may sound rational, but do not explain all the facts. The sales drop below budget in early 1958 is a familiar pattern during an economic recession. But familiar pattern or not, management must still keep inventories in control. And there are some disturbing trends shown by the graph.

Despite the downtrend in sales, work-in-process inventory is climbing—it is considerably above budget. Management can expect an increase in finished inventory to follow.

And despite lower sales, work-in-process and finished-goods inventories taken together are almost as high as in the preceding year.

These facts could be obtained from the statistical data, of course. But management can detect the trends almost instantly from the graphs—without having to bother with rows of figures and time-consuming calculations.

Management

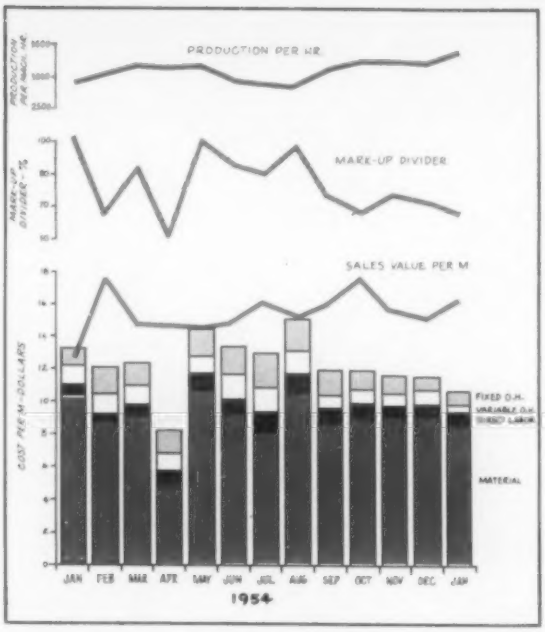
PRODUCTION COSTS

This is an analysis of the costs of fabricated parts from punch presses.

The space between the sales-value line (actual sales adjusted by changes in finished inventory) and the top of the bars shows the spread between manufacturing costs and sales price.

The "mark-up" divider is found by dividing actual costs by the sales value. As the cost per unit increases, it becomes larger. When costs and sales value are the same (note May and August) it is 100%. Management should try to keep the mark-up divider at the figure used in pricing the goods—in this case, 70%.

Production per hour indicates the level of productivity. Note that a high degree of profitability is indicated when production rises to more than 3,000 units per hour—and when the mark-up divider averages about 70%—as during the last five months. The low fixed costs per unit also indicates that production is at a high level.

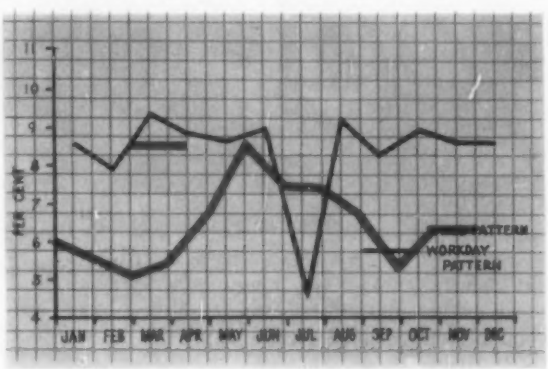


SEASONAL SALES PATTERN

It is a mistake to assume that the sales forecast is the production forecast. In this graph, sales and working days are plotted as percentages of the total year's.

The difference between the two lines indicates when production will normally exceed sales and vice versa—an important factor in production planning, cash flow, and cost control.

To see the deviations even more clearly, prepare a supplemental graph by drawing a straight horizontal line (0%) for the working days, then plotting the sales pattern as a percentage deviation of the workday pattern.



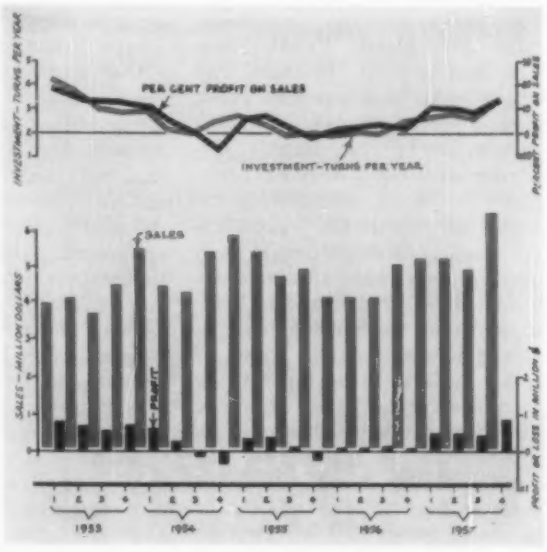
FORECASTING PROFIT

Managers look backwards for clues to the future. This graph shows the relationship between quarterly sales and profits for five years.

Percent profit on sales is obtained by "annuallizing" quarterly sales (multiplying by four) and dividing by the investment (fixed assets and inventory) at the beginning of the quarter. The percent profit fluctuates in sympathy with the turnover of investment during the year.

The graph indicates that losses are most likely to occur when investment turnover falls to the "2" level. Note the small loss in third quarter, 1954—followed by a larger loss (about 7%) the next quarter. The pattern repeats in the next year.

On the other hand, an investment turnover of 2½ results in about 10% profit on sales and 25% on investment (10 × 2.5). Suppose management decides on this profit goal. Assuming an average investment of $8-million, annual sales of $20-million are needed to produce this return. ●



Nepotism Has Defenders, Too

STRONG OPINIONS are often heard that "nepotism"—the practice of hiring relatives—is bad. Many modern public corporations have a strict rule against it.

But there are also some strong defenders of the practice. Many successful executives believe that relatives can be far more loyal to the business, work harder, and be more reliable. And within successful family enterprises, there is often an unusual affection for the company and respect for the family tradition.

The boss's son who grows up in the business often has training and a background that an outsider could never attain. Family members, too, are apt to think and behave alike, seek common goals, move in comparable social circles.

Even among the largest privately-controlled corporations, there are many outstanding examples of "inherited" presidencies. But such nepotism is tempered by long years of experience in difficult assignments, and careful grooming for the top job.

No one questions the right of Henry Ford II to be top man in the Ford Motor Co. after he cleaned up the incredible mess inherited from his grandfather, the original Henry Ford. Nor are there scoffers at the quality of leadership given E. I. du Pont de Nemours by son-in-law Crawford Greenewalt (IMD, July, p15). Such examples of family leadership can be multiplied many times.

But where blood ties are stronger than ability to perform, trouble is inevitable. It takes a rare tough-mindedness to face the issue squarely and fire the incompetent relative. The emotional dilemma can be particularly great when a father finds that his son is something less of a manager than he hoped for and the business needs.

Destructive as an incompetent relative can be to a business, however, business can be just as destructive to the relative. He either lives in fear of making a mistake, or bluffs his way into a bad situation.

The problem comes into clear focus when a family enterprise turns to public ownership. Then there can be no excuse for poor management caused by nepotism.

In the final analysis, all arguments on nepotism revolve around the question of competence on the job. "Blood may be thicker than water, but red ink is thicker than both." (*Sales Management, Oct. 3, p33*)

Small Firm Fills "Cracks in the Door"

BIG COMPANIES are often reluctant to discontinue a product, even a marginal, low-volume one. They hate to inconvenience a regular customer, and they dislike leaving even a "crack in the door" for competitors to enter.

One small U. S. company has made a highly successful business filling such "cracks" in the competitive door. Polyvinyl Chemicals Inc., with only 17 employees, has had major success in convincing big companies that their marginal or uneconomic products should be turned over to it—and that Polyvinyl will work with them and not against them.

Small firms have some natural advantages, Polyvinyl's president Max Potash recently told *Chemical Week*. One advantage is flexibility.

Potash and his two vice presidents are trained chemists or chemical engineers. But unlike big-company specialists, they divide their time between the laboratory, sales, and management—and each knows from experience how his decisions will affect overall operations.

A small firm can also develop its own products, Potash says, if it gets into the field ahead of big companies. Polyvinyl developed an acrylic polymer emulsion for use in floor waxes, for instance. When the product succeeded, bigger companies moved into the field.

Polyvinyl was secure in its technical and sales position, however, and it held its own in this relatively low-volume product. It is still the second largest manufacturer of acrylic emulsions in the country. But if a larger company had already been in the field, Polyvinyl might well have been negotiating for, instead of developing, the product.

Who Should Do Your Engineering?

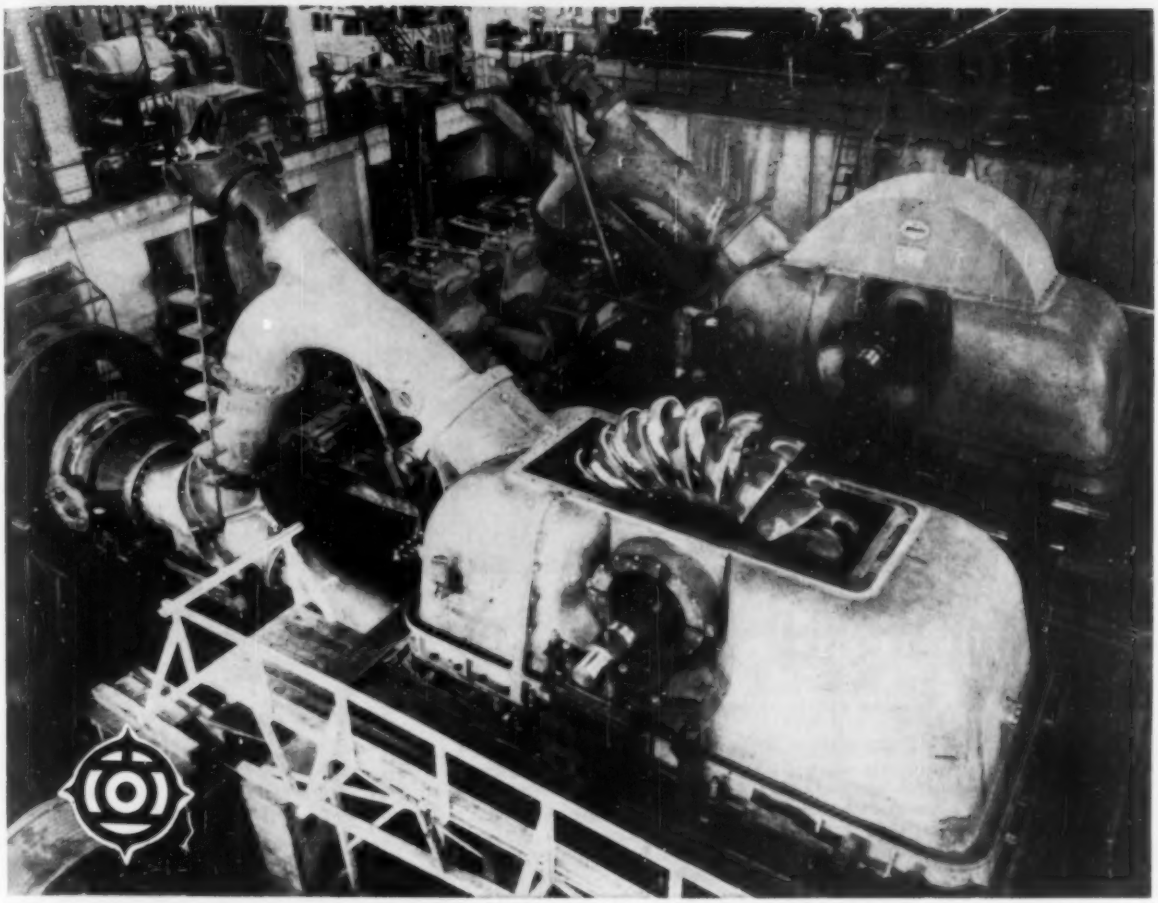
YOU WANT TO MODERNIZE or expand. But what is the best way to go about it? You can hire an established engineering firm for the entire project, you can contract for part of the job, or you can attempt the whole project with your own staff. The choice is not always easy to make.

One determining factor is the size of the job. Even small firms prefer to engineer some plant changes themselves. And even giant corporations seek help when they plan huge and expensive projects.

Doing the job yourself usually is cheaper—you save the contractor's profit, for instance. But there are other major considerations besides money. Specialized talent may be required. Time may be important. There may be a danger of company secrets leaking out. And perhaps staff training should be a by-product of the job.

Specialization — Your company or an outside firm may have the specialized experience that will be the determining factor. If the work involves a company-developed process, only an internal group may be qualified to engineer the needed changes or additions. Contracting the work can mean broad duplication of planning and supervision.

In other cases, outsiders may



HITACHI Technology is Serving the Industrial Development of the World

Hitachi technicians recently completed three 40,000 HP horizontal shaft Pelton wheels for the Balu-chang Power Station in Burma, another engineering accomplishment to confirm the high international standing of Japan's heavy industries.

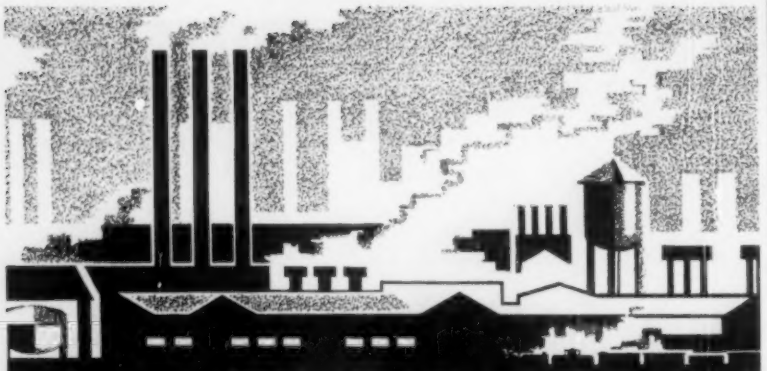
SPECIAL FEATURES

- The runner is made of 13-chrome stainless steel and integral cast in order to ensure long service life.
- Special consideration has been given in the designing to reduce weight of the unit and floor space requirement.
- A 800 mm dia. rotary valve is used as the inlet valve.
- The speed governor is of the cabinet type which adds to the speed-up of the machine.
- The number of nozzles can be changed automatically according to load.

Hitachi, Ltd.

Tokyo Japan

Cable Address: "HITACHY", TOKYO



HARSHAW CHEMICALS

for WORLD INDUSTRY

Here are some typical HARSHAW Products

CERAMIC—Ceramic Colors for pottery, glass and porcelain enamel decoration—Uverite (Frit Opacifier)—Antimony Oxide—Tin Oxide—Nickel Oxide—Chrome Oxide Green—Cadmium Sulfide—Liquid Bright Gold.

PAINT, VARNISH, AND PLASTIC—Naphthenate Driers and other Metallic Soaps (Linoresinates, Octasols, Resinates, Soyates)—Cadmium Lithopones—Pigments—CP Cadmium Pigments—Mercury Cadmium Pigments—Antimony Oxide—Organic and Inorganic Dry Colors and Dispersions—Vinyl Stabilizers.

ELECTROPLATING—Nickel Salts: Sulfate, Chloride, and Carbonate—Nickel Anodes—Cadmium Oxide—Bright Nickel Electroplating Processes.

CATALYTIC PROCESSING—Preformed Catalysts—Boron Trifluoride—Hydrofluoric Acid—Nickel Formate—Rufert Nickel Catalyst Flakes (for vegetable oil hydrogenation).

MISCELLANEOUS—Hydrofluoric Acid—Ammonium Bifluoride—Miscellaneous Fluorides—Copper Chloride—Copper Oxide—Copper Naphthenate—Cobalt Sulfate and Carbonate—Manganese Carbonate—Cadmium Oxide—Synthetic Crystals (Optical, Scintillation, Electronic).

THE HARSHAW CHEMICAL CO.

1945 E. 97th Street • Cleveland 6, Ohio, U.S.A.
CABLE ADDRESS: HARSHAW-CLEVELAND

FREE! 20-page book lists all Harshaw Chemicals available for export. WRITE TODAY FOR YOUR COPY.

IS YOUR INDUSTRY LISTED HERE?

Abrasives
Aeronautical
Automotive
Brick and Tile
Ceramic
Cement and Concrete
Cosmetic
Disinfectants
Electrical Manufacturing
Electroplating
Enamel
Engraving and Electrotyping
Feed Stuff, Mineral Feed
Fertilizer
Food
Glass
Insecticide and Fungicide
Laundry
Leather
Lithographing
Linoleum and Floor Covering
Lubricant
Match
Metallurgical
Metal Working
Oil Cloth
Optical
Paint, Varnish and Lacquer
Paper
Petroleum
Pharmaceutical
Photographic
Porcelain Enamel
Plastics
Pottery
Printing Ink
Pyrotechnic
Refractories
Rubber
Shade Cloth
Soaps
Textile
Veterinary Remedies
Welding Electrodes
Wall Paper

have the advantage. They may have a special process or a packaged plant to offer, or unusual experience in the changes you plan. Chemical manufacturers, for instance, often buy sulfuric acid plants outright from companies specializing in this field. A concern doing business in foreign countries often turns to local architects and builders for their special knowledge of conditions and practices.

Time—A rush job may make outside help necessary. Engineering firms are specialists in getting work done quickly, and they often can call upon broad resources to make deadlines. In such cases, they will want to have the entire job under their control, so they can expedite all phases of design and construction.

Speed also can rule in favor of a company's own staff. With time at a premium, some companies believe that they can get a job started faster with their own men. They resent the time needed to brief an engineering firm on the company's business and plans. Such thinking is convincing only when the proposed job is a simple addition in line with the management's past practices.

Secrecy—If your organization has a secret process, it frequently will be reluctant to bring in outsiders. This argument can be overstressed, however. Not only do engineering firms sign non-disclosure contracts, but they have a great deal to lose in reputation if confidential information escapes through them.

But there is still the problem of employees of engineering firms going on to other assignments, carrying secrets with them. This is a hazard, but probably no more so than secrets leaking out through normal changes in the company's own personnel.

Training—A convincing argument in favor of doing your own engineering is the experience the staff gets. Such a project often will end up in developing valuable experts and managerial help, who can aid in operation and future projects. The project thereby serves as a training program, and all experience and skill gained during it stays in the company. *(Chemical Week, Nov. 15, p 105)*

A New System of Work Measurement

UNIFIED STANDARD DATA (USD) analysis, a new system of work measurement developed by a U. S. management consulting firm, is said to have special advantages for use on what the methods engineers call "long-cycle operations" —those of two minutes or over.

USD integrates four basic measurement techniques—thus the name—but most of its standard-data elements were built up from the widely-used MTM (Methods-Time Measurement) analysis. And an MTM-trained engineer can use USD with little trouble.

In test applications, the consultant—H. B. Maynard & Co.—says that USD has proved five times faster to apply than MTM on long-cycle and mixed-assembly work.

But it is not limited to any special set of conditions. It can be used to develop time standards on large one-unit construction or repair jobs, for varied short-cycle assembly work, for miscellaneous job shop work, and for setting assembly-line standards.

Work elements are said to be large enough to be easily understood, yet small enough to be universally applicable within each class of work. And the job breakdown on the element summary sheet automatically provides a set of instructions to the workers.

USD makes use of a consistent numbering and coding system, clear and short element descriptions with examples, and condensed MTM data. MTM repetitive-sequence elements, for instance, have been synthesized and coded into a system of standard sequences. This is one of the four methods used to set standards—along with time study, straight MTM analysis, and descriptive job elements.

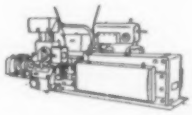
The first application of USD was on a tractor assembly line with seven different sizes and types of tractors assembled intermittently on the same line. Lots varied from 10 to 500 tractors in a run. Time standards in use showed a cycle length (station time) of 15 minutes. Total assembly time for

Where Performance Counts

WALLACE & TIERNAN EQUIPMENT IS USED

CHLORINATION

The W&T high capacity chlorinator shown above at a steam generating plant is used for chlorination of cooling water to eliminate slime formation on condenser water-side surfaces. The W&T chlorinator was chosen because of its accuracy, dependability, and simplicity of operation. These qualities are typical of Wallace & Tiernan's complete line of chlorination equipment which is widely used both in industry and in the protection of public water supplies.



PROCESS FLOW CONTROL

Equipment includes chemical solution feeders, gravimetric and volumetric dry feeders, and gravimetric meters for use in the chemical, grain, and food processing industries.

AIDS TO NAVIGATION

Includes a number of protective devices for navigation such as buoys, lamp changers, flasher mechanisms, signal timers, fog horns, aircraft flasher units and other related apparatus designed for use in the marine and air transportation field.

PRESSURE SENSITIVE INSTRUMENTS

Equipment includes a complete line of aneroid and mercurial pressure sensitive instruments, such as altimeters, barometers, and manometers designed for use in industrial testing as well as for research purposes.

Other quality Wallace & Tiernan products and services used throughout the world are listed below. For further information send for list number F-106 of available free technical publications on all Wallace & Tiernan products.

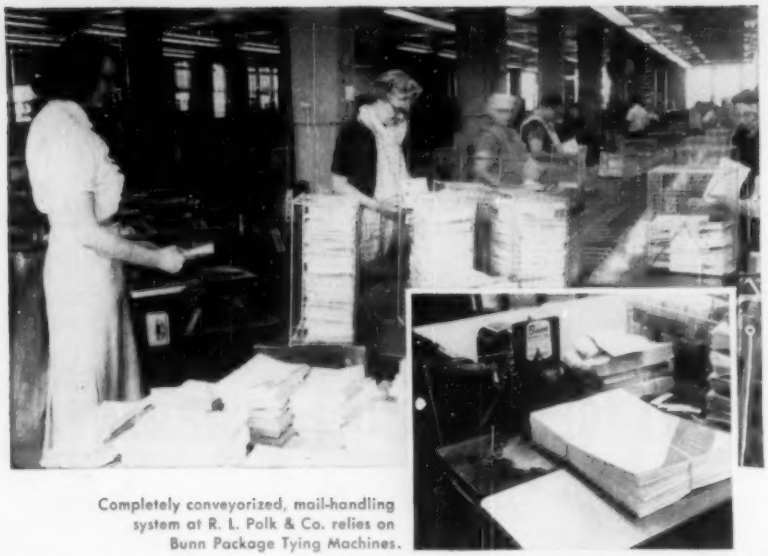
Ammonia Control Apparatus — Cathodic Protection Systems — Chemical Feeders — Chlorinators — Decay Control Process for Produce — Electric Marine Beacons — Flour Processing Chemicals — Pharmaceuticals — Precision Instruments

WALLACE & TIERNAN INCORPORATED

25 MAIN STREET, BELLEVILLE 9, NEW JERSEY, U.S.A.

REPRESENTED IN MOST COUNTRIES

F-106



Completely conveyorized, mail-handling system at R. L. Polk & Co. relies on Bunn Package Tying Machines.

Machine-tying beats hand-tying 10 to 1

Bunn automatic tying "keeps mail on the move" for R. L. Polk*... handles up to 1,500,000 units a day!

"With a mailing volume like ours," says Mr. M. K. Buda, Manager of Direct Mail Production for R. L. Polk's busy Detroit office, "hand methods are costly. When it comes to tying, we rely fully on the Bunn Tying Machine!

"Yes," says Mr. Buda, "Bunn automatic tying has been saving us time and money since 1933. In all, we now use 26 Bunn Machines."

Mail-handling specialists since 1870, R. L. Polk & Co. know whereof they speak. Whether your volume is in the hundreds or hundred-*thousands*, Bunn automatic tying can streamline your mailing operations.

Ties anything. And mail is just part of the story. Packages, magazines, boxes, bundles: yes, literally *anything* you now tie by hand can be tied neater, better and faster on a versatile Bunn Machine.

Operation is simple, positive. You just position the object to be tied, then step on a trip. Automatically, you get a precision tie ... in 1½ seconds or less. Faster than hand-tying? About 10 times. And the Bunn knot saves on twine, too.

Send today for full data on how Bunn automatic tying can cut costs for you. Use the handy coupon below.

*Internationally famous direct mail organization

BUNN PACKAGE TYING MACHINES Since 1907

B. H. BUNN CO., Export Department
10406 South Western Avenue, Chicago 43, Illinois, U.S.A.

MAIL COUPON NOW FOR MORE FACTS

GET THE WHOLE STORY
Send today for this fact-packed booklet, which illustrates the many advantages of Bunn Tying Machines. Or let a Bunn Tying Engineer show you. No obligation.

B. H. BUNN CO., Export Dept.
10406 S. Western Ave., Chicago 43, Ill., U. S. A.

☐ Please send me a copy of your free booklet.
☐ Please have a Bunn Tying Engineer contact me.

Name_____
Company_____
Address_____
City_____ Zone____ State_____

study was roughly 10 man-hours per tractor.

But only a small part of the standards could be transferred directly from one tractor type to the next. Standards for other assembly operations were needed. And there was a shortage of methods and standards engineers. In this situation, the USD technique worked well. *(Factory Management & Maintenance, Oct., p86)*

In Management

COMPUTERS and mathematical formulae largely will replace middle management 30 years from now, say U. S. professors Harold J. Leavitt and Thomas L. Whisler, writing in the *Harvard Business Review*. They foresee a widening gap between top management and lower levels, with fewer executives moving up from the ranks.

Top management men will come directly from university training, the professors predict, and others will remain at the management level at which they were hired. With the reshaping of business organizations, and the use of more complex equipment and automated methods, only a few top men will be used by each company. They will have to be truly professional and creative, say the professors, and they will move from company to company more often than such men do at present.

HOW MUCH RESEARCH MONEY should a company spend to get the biggest profits and insure growth? Answers may be forthcoming in a long-term study being conducted by Case Institute of Technology, U. S. A. The study's first results will be sets of standards for a number of projects, types, and a formula that will suggest to management how much money it can profitably spend for research.

SOVIET OFFICIALS outdo big-time capitalists when it comes to travel expenses. Business trips cost the U. S. S. R. the equivalent of $5.5-million in the first five months of 1958, according to *Product Engineering* magazine. Seldom does a Soviet bureaucrat travel to Moscow without bringing along his

secretary, an adviser, and at least one assistant.

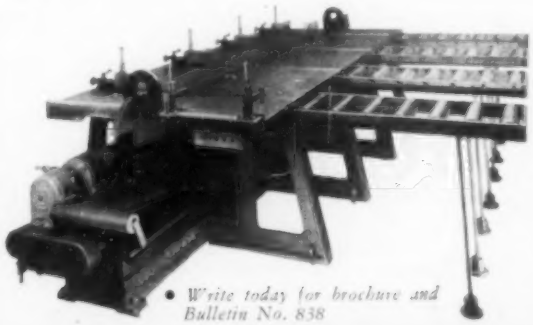
MANAGEMENT RULES and theories seem to work well and increase efficiency for "large-batch" and mass production firms, but not so well for other types of business. New concepts are needed.

These are the conclusions of a four-year study carried out by Britain's South East Essex Technical College, under a grant from the Department of Scientific & Industrial Research. The DSIR report, "Management and Technology," is available from H. M. Stationery Office for 2s. 6d. (*Business, Nov., p12*)

RATIONALIZATION has substantially cut down labor costs in West Germany during the past eight years, and strengthened the position of white-collar workers. Man-hours worked per unit of industrial output went down 33% from 1950 to 1957. During the same period, the number of office workers rose by 67%, against a rise of only 47% for manual workers.

Leading metal workers cut large aluminum plates and sheets on this new OLIVER Saw

Important metalworking and aircraft plants cut large sheets and plates of aluminum up to 6" thick on this Oliver Plate Saw. Also copper, brass, bronze, micarta and similar materials. It's fast and accurate. Saw unit travels 1' to 40' a minute, returns 40' a minute. Cast iron tables on each side of saw: 2½' x 12'. Each table extension 18" x 49" has 7 rollers. Machine furnished 12' to 40' long in multiples of 4'. Get all the facts!



• Oliver offers cost-cutting machines for nonferrous metals and hard-to-work materials: Circular Saws, Band Saws, Shapers, Millers, Belt and Disk Grinders and Polishers, and Metal Spinning Lathes.

• *Write today for brochure and Bulletin No. 838*

OLIVER MACHINERY COMPANY
Established 1890 GRAND RAPIDS 2, MICHIGAN

FOR SALE

USED EQUIPMENT FOR PRODUCING OXYGEN BY LIQUEFACTION

U. S. gas manufacturer offers for immediate sale used liquefaction oxygen producing equipment of American and German make. The capacities range from 2,000 to 3,500 cubic feet per hour. Complete information will be furnished when requested in writing.

KIRKGASSER-DREW INTERNATIONAL
400 North Michigan Ave.
Chicago 11, Illinois, U. S. A.

Victor HACKSAW BLADES

Victor makes a complete line of every type, pitch and size. No matter what the cutting requirements of the job may be, a quality-made Victor Blade can help you do the job better, faster and at lower cost.

4878

Inquiries invited from established agents in certain areas.

VICTOR SAW WORKS, INC.
Middletown, New York, U.S.A.
MAKERS OF HAND AND POWER HACK SAW BLADES, FRAMES, AND METAL AND WOOD CUTTING BAND SAW BLADES

Publications Digested

American Automobile
American Letter
American Machinist
Aviation Week
Business Education World
Business Week
Chemical Week
Coal Age
Construction Methods & Equipment
Control Engineering
El Automovil Americano
Electrical Construction & Maintenance
Electrical Merchandising
Electrical West
Electrical Wholesaling
Electrical World
Electronics
Engineering & Mining Journal
E&MJ Metal & Mineral Markets
Engineering News-Record
Factory Management & Maintenance
Fleet Owner
Food Engineering
Industrial Distribution
Ingenieria Internacional Construccion
Ingenieria Internacional Industria
Metalworking Production (London)
National Petroleum News
Nucleonics
Petroleum Week
Power
Product Engineering

Purchasing Week
Textile World
Today's Secretary
McGraw-Hill Publishing Co., Inc., 330 W. 42nd St., New York 36, N. Y.

American Builder, Marine Engineering, Railway Age, Railway Track and Structures, Railway Locomotive and Cars, Railway Signaling & Communications
Simmons-Boardman Publishing Corp., New York 17, N. Y.

American Business
Dartnell Publications, Inc., Chicago 40, Ill.

Architectural Record
F. W. Dodge Corp., New York 18, N. Y.

Business
Business Publications Ltd., Mercury House, London, S. E. 1

Ceramic Industry
Industrial Publications, Inc., Chicago 3, Ill.

The Controller
Controllers Institute of America, Inc., New York 16, N. Y.

The Economist
The Economist Newspaper, Ltd., London, S. W. 1

Harvard Business Review
Harvard University, Boston 63, Mass.

Heating, Piping & Air Conditioning
Keeney Publishing Co., Chicago 2, Ill.

Industrial Marketing
Advertising Publications, Inc., Chicago 1, Ill.

The Management Review, Personnel, Supervisory Management
American Management Association, New York 36, N. Y.

Metal Progress
American Society for Metals, Cleveland 3, Ohio

Modern Packaging, Modern Plastics
Breskin Publications, New York 22, N. Y.

The Paper Industry
Fritz Publications, Inc., Chicago 5, Ill.

Petroleum Press Service
Petroleum Press Service, London, E. C. 2

Plastics, The British Motor Ship
Temple Press, Ltd., London, E. C. 1

Printers' Ink
Printers' Ink Publishing Corp., Vision Inc., New York 22, N. Y.

Rubber and Plastic Age
Rubber and Technical Press, Ltd., London, S. W. 1

Sales Management
Bill Brothers Publishing Corp., New York 16, N. Y.

The Times Review of Industry
The Times Publishing Co., Ltd., London, E. C. 4

Welding Engineer
Welding Engineer Publications, Inc., Morton Grove, Ill.

ADVERTISERS

in this issue

OVERSEAS EDITION

ALLIS-CHALMERS INTERNATIONAL 3, 21
Agency—Bert. S. Gittins Adv.
Agency—Compton Adv., Inc.

ANDERSON CO., V. D. 33
Agency—Will Inc.

BETHLEHEM STEEL EXPORT CORP. 5
Agency—Gotham-Vladimir Adv. Inc.

BRITISH OVERSEAS AIRWAYS CORP. 34
Agency—Foote, Cone & Belding Ltd.

BUNN CO., B. H. 42
Agency—Robertson Buckley & Gotsch Inc.

CHAIN BELT COMPANY 32
Agency—The Buchen Co.

CHRYSLER INTERNATIONAL, S. A. ..... 4th Cover, 16
Agency—Ross Roy Inc.

FORD MOTOR CO., LTD. 45
Agency—Rumble, Crother & Nicholas Ltd.

GENERAL MOTORS OVERSEAS OPERATIONS 19
Agency—Richard T. Brandt, Inc.

HARSHAW CHEMICAL CO. 40

HITACHI LTD. 39
Agency—Dentsu Adv. Ltd.

HYSTER COMPANY ..... 2nd Cover
Agency—Cole & Weber, Inc.

KIRKGASSER-DREW INTERNATIONAL 43
Agency—Kirkgasser-Drew Adv.

KLM ROYAL DUTCH AIRLINES 8
Agency—Smit's Reclame-Advies en Service-bureau n. v.

LINK-BELT COMPANY 29
Agency—Klau-Van Pietersom, Dunlap, Inc.

OLIVER MACHINERY CO. 43
Agency—Webb J. Van Dyke

PAN AMEICAN 24, 25
Agency—J. Walter Thompson Co.

PHILIPS' GLOEILAMPENFABRICKEN 22
Agency—Nationale Publiciteits Onderneming

REGIE NATIONALE RENAULT 11
Agency—Promos Publicite

STOKES CORP., F. J. 28
Agency—Aitkin-Kynett Co.

TIDEWATE OIL CO. 31
Agency—Gesellschaft Fur Marktentechnik

UNION CARBIDE INT'L CO. ..... 3rd Cover
Agency—National Export Adv. Service Inc.

UNITED STATES STEEL EXPORT CO 7
Agency—Batten, Barton, Durstine & Osborn, Inc.

VICTOR SAW WORKS, INC 43
Agency—O. S. Tyson & Co., Inc.

VIKING PUMP CO. 6
Agency—Wesley Dax & Co., Inc.

WALLACE & TIERNAN INC. 41
Agency—Branstater Associates Inc.

WORTHINGTON CORP. 46
Agency—Gotham-Vladimir Adv., Inc.

SALES REPRESENTATIVES

New York 36..... K. P. Bliss, 500 5th Avenue
Boston 16.....D. C. Coddington, 350 Park Square Bldg.
Chicago 11..... J. P. MacLeod, S. Kimes, 520 N. Michigan Avenue
Cleveland 13.....W. S. Bliss, 55 Public Square
Detroit 26.....D. M. Oldroyd, 856 Penobscot Bldg.
Philadelphia 3..... G. Barnes, 6 Penn Center Plaza
Pittsburgh 22.....W. S. Bliss, 919 Oliver Bldg.
St. Louis 8.....S. Kimes, 3615 Olive Street
Atlanta 3.....D. C. Billian, 1301 Rhodes Haverty Bldg.
Los Angeles 17.....R. Yocum, 1125 West 6th Street
San Francisco 4.....John Otterson, 68 Post Street
Dallas 1.....F. E. "Gene" Holland, 1712 Commerce Street
Denver 2.....J. W. Patten, 1740 Broadway
Germany.....M. R. Zeynel, Landgraf—Wilhelm 15, Frankfurt am Main
United Kingdom....E. E. Schirmer, Norman Strick, McGraw-Hill House, 95 Farringdon St., London, E. C. 4.

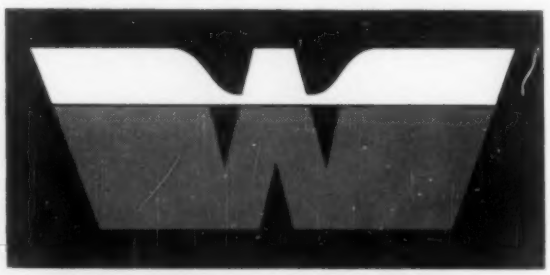
TRADERS for DURABILITY

Rugged Traders last longer, earn more.

Extra strength—from the *new* ladder-type, full-length frame. Extra long life—from the *new* synchromesh gearbox and *new* hypoid rear axle. Extra power-with-economy—from the *new* Petrol or Diesel power option for all models—4-cyl. for the 15, 20, 30 and 40, 6-cyl. for the 40, 50 and 70. These new, maximum loadcarrying Traders are tough, stylish, powerful . . . cost less to buy and run . . . are backed by world-wide Ford Service. They're money-makers, and they're at your Ford Dealer's *now!*

FORD

MOTOR COMPANY LIMITED · ENGLAND



WORTHINGTON

This is our new symbol of quality . . . for recognized leadership in international trade. It is symbolic of Worthington, its subsidiary companies and many distributors throughout the world. It represents over 118 years of skilled manufacturing, tempered by continuous research and advanced engineering, to keep pace with the ever-demanding needs of commerce and industry. As products and designs change for the better, so, too, do trademarks. This vigorous new trademark is as modern as Worthington itself, and it stands for an ever-increasing reputation for value and quality. Look for this trademark. It identifies all Worthington products . . . outstanding in performance, reliable in operation, and trusted in every market place of the world. Worthington Corporation, Harrison, New Jersey, U.S.A.

WORTHINGTON ASSOCIATED COMPANIES: ARGENTINA, Worthington Ltd., Buenos Aires • **AUSTRIA**, Worthington Pumpen und Maschinenbau, G.m.b.H., Vienna • **BRAZIL**, Worthington S.A. (Maquinas), Rio de Janeiro • **CANADA**, Worthington (Canada) Ltd., Brantford, Ont. • **COLOMBIA**, Worthington Limitada, Bogota • **ENGLAND**, Worthington-Simpson, Ltd., London • **FRANCE**, Société Worthington, Le Bourget • **GERMANY**, Deutsche Worthington G.m.b.H., Hamburg • **ITALY**, Worthington Società Italiana Pompe e Compressori, Milan **JAPAN**, Niigata Worthington, Ltd., Tokyo • **MEXICO**, Worthington de Mexico, S.A., Mexico, D.F. • **SPAIN**, Worthington, S.A., Madrid

YOU — Management Reading

A Study of Europe's Economy

The Network of Intra-European Trade provides a current picture of the trade trends and development as Western Europe moves toward the Common Market. It contains statistical information on production, manpower, prices, trade, and finance for member countries of the OEEC, plus the U. S. A., Canada, Spain, and Yugoslavia. 217 pages, 900 Fr. fr., 15/-, $2.50. (Organization for European Economic Cooperation, 2 Rue Andre Pascal, Paris 16, France.)

Bulletins from Industry

Pallet Handling in Narrow Aisles describes the principal types of trucks available for narrow aisle operations and shows on-the-job photographs of equipment in use. (Raymond Corporation, Greene, New York) . . . Catalog AB-58-2 describes and illustrates Delta's complete line of industrial power tools—drill presses, grinders, shapers, planers, lathes, saws. (Rockwell Mfg. Co., Delta Power Tool Div., 497 N. Lexington Ave., Pittsburgh 8, Pennsylvania.)

Handy Handbooks

The Purchasing Handbook brings together in one volume all the guides and references purchasing agents need for day-to-day operation. 1388 pages, $15.00. Some of the subjects covered: the purchasing function, price evaluation, inventory control, and import and export purchasing. (McGraw-Hill Book Co., 330 West 42nd St., New York 36, New York.) . . . The new, revised edition of the Plastics Engineering Handbook brings you a wealth of up-to-date information on plastics and plastics products. 852 pages, $15.00. (Reinhold Publishing Co., 430 Park Avenue, New York 22, New York) . . . The Building Construction Handbook presents the latest developments in design theory and construction practices from building materials and soil mechanics to construction management. 906 pages, $15.00. (McGraw-Hill Book Co., 330 West 42nd St., New York 36, New York.)

Coal As a Raw Material

The Metallurgical, Chemical and Other Process Uses of Coal surveys the versatility, present importance and future potentials of coal as an industrial raw material. Information on many varied coal-using processes is also included. 64 pages, $3.00. (Bituminous Coal Research Inc., 121 Meyran Avenue, Pittsburgh 13, Pennsylvania.)

The Social Structure of the Factory

Human Relations and Modern Management is a collection of essays by British, Dutch, and American specialists in the field—exploring human relations problems and their implications for top management. 256 pages, $5.30. (North-Holland Publishing Company, 68-70 N.Z. Voorburgwal, Amsterdam, Holland.)

A Practical Book on Inventory Control

Tested Scientific Inventory Control—written for the executive and not the mathematician—tells in simple words and illustrations how money-saving inventory management methods can be applied. $12.50. (Management Publishing Corporation, 22 West Putnam Avenue, Greenwich, Connecticut.)

YOU & Personal Affairs

When You Buy a Work of Art

There are many reasons why a businessman can become interested in collecting pictures. He may be a talented artist or "artist at heart" himself. He may value the prestige, and find it useful in his business. He may see art as a hedge against inflation, or even as a speculation.

If you are interested in becoming a "collector"—or just in buying a work of art for the living room—there are some basic things to know.

Have faith in your own tastes. After all, you will be living with the picture. Will the colors go with your wife's blue rug?

Do not be afraid to talk prices with art dealers. The pictures are for sale, and they carry a price tag. With time, you should build up a sense of relative value—and the relationship of artistic value to monetary value. And do not hesitate to ask if the artist is represented in museums, or to check the reviews of art critics.

If you are a beginner, or have a limited budget, investigate the graphic arts first—woodcuts, lithographs, engravings. These are not to be confused with reproductions.

They are done by the artist himself, carry his signature, the date, and usually two other numbers—11/14, for example, means the 11th impression in a series of 14, or it might be 111/200, etc.

The size of the edition influences the price, but the number of the impression has little effect—it is the quality that counts. First-rate graphics can be bought for $50 to $75. And even one by a modern "master"—whose paintings sell for thousands of dollars—can be bought for $200 to $400.

If you feel adventurous, investigate the young artists whose work is just beginning to be recognized. Fine paintings—even of artists represented in one or two museums—can be bought for $150 to $300.

And from there on up, you can find articles on every price level.

High-quality paintings continue to increase in value. The problem is to select the good ones—and that is a question of taste and judgment.

But remember that fashions change in art, and even the greatest artists paint second-rate pictures. Many art critics say that prices now being paid for the fashionable Impressionists and Post-Impressionists—even second-rate Van Goghs, Gauguins, early Picassos, etc.—are too high. Just last October, a Cezanne was bought for an astronomical $616,000.

The secret of investing in art, in the words of one advisor, is to "forget the power of money in humility before the work of art."

There Are National Differences

Here are some pithy comments on European dressing habits from the head of an international house of custom tailors. In an interview with *The New York Times*, Mrs. Annie Knize reports that the Englishman likes to look carelessly perfect. The German is anxious to be impeccable, but likes very heavy, military-looking materials. The Frenchman is more interested in food or the way his wife looks than the cut of his suit, and often wears baggy clothes. The Italian likes olive green suits and a "curious shade of brown." The Austrian often insists on too much padding, and eats too much potato salad to wear pin-striped suits.

Why is the field clothed in **black?**

Many people have been puzzled to see cultivated fields completely covered with black film made from Union Carbide polyethylene resins. Through small slits in the film, plants may be seed growing. Or sometimes the plants are covered with plastic tents. This is just one of the reasons why you'll be seeing more and more polyethylene film in agriculture, because results so far have been remarkable.

Different colored film is used for different purposes and for different crops. [illegible] the ground, and helps ripen crops ten days to two weeks early. Aluminum color reflects the sun and keeps the soil cooler in mid-summer. Other pigments keep out harmful red and infra-red and let in the growth-stimulating green, blue and ultra-violet rays.

IN ANY COLOR, film made from Union Carbide polyethylene resins keeps down weeds, holds moisture and fertility in the soil, helps combat many plant diseases and blights, keeps fruit clean, helps give a greater yield of higher quality. It also helps promote plant growth by keeping the soil loose and does not interfere with normal harvesting methods, for rubber tires will not harm it. Users report that polyethylene film returns its cost several times over the first year, with every indication that the same polyethylene film can be re-used for three to five years.

FREE BOOKLET IMD-1 describing the many uses of film made from Union Carbide polyethylene resins in agriculture, including mulching, silage protection, lining ponds, irrigation ditches, and green house construction will be sent you on request. This booklet also includes information on other Union Carbide products which serve agriculture; Crag Agricultural Chemicals and Eveready Garden Products. Write to UNION CARBIDE INTERNATIONAL COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y., U. S. A., Cable Address: Unicarbide, New York.

AFFILIATED COMPANIES:

ARGENTINA: Eveready S. A. Industrial y Comercial
AUSTRALIA: Union Carbide Australia Limited
BRAZIL: S. A. White Martins
Union Carbide do Brasil, S. A.
National Carbon do Brasil, S. A.
COLOMBIA: National Carbon Colombia, S. A.
FRANCE: Compagnie Industrielle Savoie-Acheson
HONG KONG: National Carbon (Eastern) Ltd.
INDIA: National Carbon Co. (India) Ltd.
INDONESIA: National Carbon Co. (Java) Ltd.
ITALY: Elettrografite di Forno Alliane
MEXICO: National Carbon-Eveready, S. A.
Bakelite de Mexico, S. A.
NEW ZEALAND: National Carbon Pty. Ltd.
PAKISTAN: National Carbon Co. (Pakistan) Ltd.
PHILIPPINE IS.: National Carbon Philippines Inc.
SINGAPORE: National Carbon (Eastern) Ltd.
SWEDEN: Skandinaviska Grafitindustri Aktiebolaget
SWITZERLAND: Union Carbide Europa, S. A.
UNITED KINGDOM: Bakelite Limited.
British Acheson Electrodes Limited.
Union Carbide Limited.

Products of Union Carbide include

Union Carbide Plastics and Resins • Union Carbide Silicones • Haynes Stellite Alloys
Prestone Anti-Freeze and Automotive Specialties • Crag Agricultural Chemicals • Dynel Textile Fibers
Synthetic Organic Chemicals • Acheson Electrodes • Linde Welding and Cutting Equipment
Eveready Flashlights and Batteries • Electromet Alloys and Metals • National Carbons

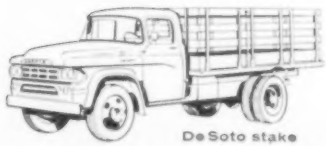
UNION CARBIDE

Choose the trucks that give you the most . . . choos

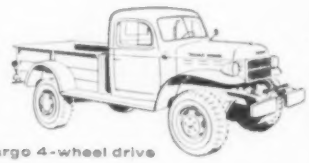
Dodge Town Wagon

DODGE

DE SOTO



De Soto stake



Fargo 4-wheel drive

FARGO

NEW FOR '59

The right truck for every hauling need . . . from 4,250 lbs. G.V.W. to 65,000 lbs. G.C.W.

From low-tonnage expresses to high-tonnage tandems, Dodge, De Soto, Fargo trucks for '59 speak the language truck owners want to hear. For no matter what your hauling needs are, you'll get the most of what you're looking for . . . in a Dodge, De Soto, or Fargo.

Most Power—New 205- and 207-horsepower V-8's, others to 234 horsepower. Economical Sixes.

Most Payload—Pound for pound, inch for inch, you can pack more of what you haul into these trucks than into any others you can buy.

Most Economy—Advanced combustion-chamber design permits top performance on thrifty, regular-grade gas.

Most Style—Smart, modern appearance that adds to your business prestige. See your Dodge, De Soto, or Fargo distributor today, and see how Dodge, De Soto and Fargo trucks give you the most.

Always use factory-approved MoPar parts, designed to fit right and work right in Chrysler Corporation vehicles

CHRYSLER INTERNATIONAL, S. A.